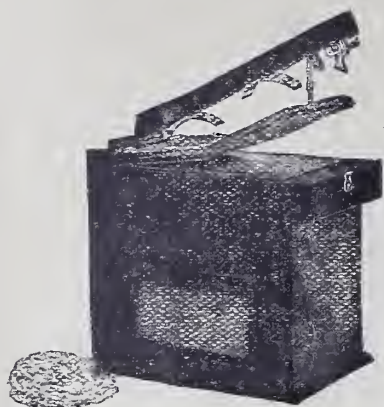


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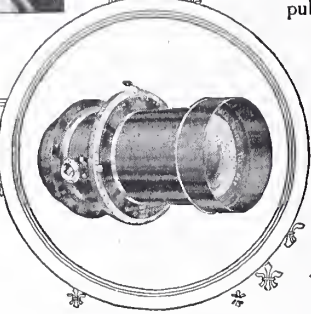
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Mr. Mock objected somewhat to having the spotlight of publicity turned on his commendable work but through the good graces of his receptionist, we had the pleasure of looking over his personal scrap-book. The trophies and honors from all parts of the globe mentioned therein in newspaper clippings, were actually too numerous to itemize.

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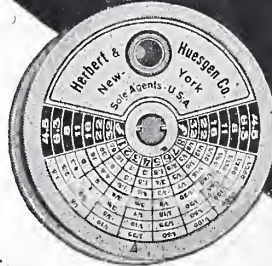
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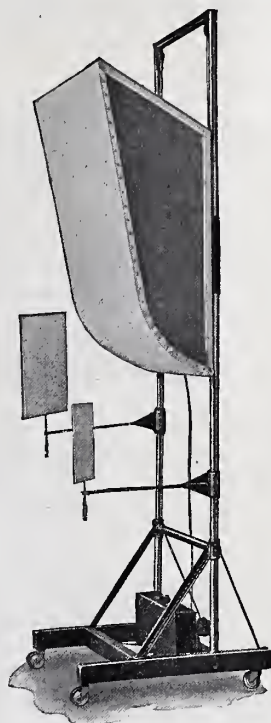
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*—From Introduction by Mr. Phillips.*

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The Man and the Location	How to Know the Profits
Buying and Arranging the Stock	Credit and Collections
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Of THE PHOTOGRAPHIC JOURNAL OF AMERICA, published monthly at Philadelphia, Pa., for October 1, 1920.

STATE OF NEW YORK }  
COUNTY OF NEW YORK } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Thomas C. Watkins, who, having been duly sworn according to law, deposes and says that he is the Editor of THE PHOTOGRAPHIC JOURNAL OF AMERICA, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are

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Publisher, Edward L. Wilson Co., Inc.  
Editor, Thomas Coke Watkins  
Managing Editor, none  
Business Managers, none

*Post-office Address*  
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122 East 25th Street, New York City

2. That the owners are: (Give names and addresses of individual owners, or if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent. or more of the total amount of stock.)

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities, than as so stated by him.

THOMAS C. WATKINS, Editor.

Sworn to and subscribed before me this 22d day of September, 1920.

SEAL] New York County.

LEWIS L. PIERCE,  
Notary Public, City and County New York, No. 61.  
(Commission expires March 31, 1921.)





STUDY  
BY IMOGEN PARTRIDGE  
SEATTLE, WASH.





# *The* PHOTOGRAPHIC · JOURNAL · · of AMERICA ·

VOLUME LVII

NOVEMBER, 1920

NUMBER 11



## PLACING THE HEAD IN THE PORTRAIT

By SIGISMUND BLUMANN

THERE is an astonishing difference in opinion and taste, certainly in practice, as to how near the top of a portrait the head shall be placed. Passing the original souls who are happiest when half the tophead is cut off or the head and back hair are lost in the margin of the picture, we must take the conservative standards to reach any general conclusion.

It is not safe to resort to the great painters to help in a decision, for color, odd to say, and the brush technic have modifying influences. But by studying the best portrait photographers, and (let us not belittle financial success) those who have established themselves with large clienteles, we may arrive at more or less certain deductions. At least we may accept that the methods of those who succeed are methods that we can safely follow in striving for success.

Art is purely temperamental; but all temperament is not art. Every whim and freak that has no distinction so marked as the one of differing from

everything hitherto done, is not thereby constituted as artistic. In fact, too labored a chase after originality has often killed genuine talent. So we shall dare to say that a portrait in which the head is at one of the lower corners, or chopped off by the top, or nearly bumping its skull against the upper margin, is not by its unique appearance even to that extent artistic. In fact, so many amateurs who have just entered the competitive field of making a living by what they erstwhile did, and were paid for in praise, are doing these things that they are not even original.

There are reasons conceivable when eccentric placing is justified; even best. These reasons need to exist to justify. Let the portraitist notice how the effect of atmosphere, height, comfort, dignity, vivacity, etc., are created by the placing of the head within the margins. Let him cultivate by continual experimenting with every negative from which he prints the faculty of judging more easily, as time and experience beget proficiency, just where to put his subject inside its



FIG. 1

"frame," and instinctively he will do what is right.

The writer, for the purpose of evolving some practical rule, has for some months been watching the practice of the ablest men he knows, or whose work he has had an opportunity of seeing. Such a rule is almost lost in the number of its exceptions; but it will serve. This is the formula: Divide the portrait in three equal parts, the middle of the face should come close to the line dividing the two upper thirds. In a plainer statement: If the print be four by six, we draw a line across from side to side two inches from the bottom, and another two inches from the top. The middle of the face should then be close to the upper line. We assume of course that the photographer will not attempt to put a

head on a four by six as would be warranted only by a five by seven or larger, or so small as to be lost in an expanse of air.

The effect of tallness may be given by somewhat raising the face, and shortness be suggested by lowering it below the line spoken of; but this must be discreetly done lest the likeness of the subject be spoiled. For, be it noted, there is a verisimilitude essential to a good portrait that takes in feature, expression, character, complexion, and size. For example, we have seen the portrait of a petite, vivacious damsel so largely put down on paper as to appear bloated, heavy, and assertive.

The limits of time, space, and intention deny the possibility of entering a more elaborate expounding of diagonals

as related to placing the head, but each reader who is sufficiently interested may discover many interesting things for himself by drawing a line from corner to corner of the portraits that please him best, or, better, the portraits that please most purchasers of portraits best. He will find, for one thing, that there seems to have been an instinctive obedience to some unwritten law.

So much has been written of the triangular composition, the Hogarthian curve, balance, and what not, and so little about the simple things that pass notice from their very simplicity, that we strongly urge the men and women who seek to prosper to study the practices of others, and to make such deductions from their studies as will help them prosper.

## BOOKLETS FOR ADVERTISING

SOME booklets are good, some good for nothing. But there is no necessity for abusing the booklet idea because one is bored with a lavish in-pouring of badly printed booklets, whose particular sins are poor paper, freakish type, crowded matter, miserable display, and "bound" to beat the best set of nerves that ever essayed to open them. For uncut pages, smudgy cuts, and pages tucked together one-quarter their depth are trifles which well nigh unhorse the best disposition.

That there is a growing need for booklets in every business is undisputed, especially a business dealing in luxuries such as photographs. Public opinion needs stimulating constantly if we aim to provoke a steady demand for portraits.

Now, as to the kinds of booklets that are suitable for the photograph business.

If you have just opened a studio, issue a booklet well illustrated with choice specimens of portraiture and several scenes about the studio, giving a general description of the rooms, the equipment, the styles, and prices.

Once a year such a booklet should be issued by every studio, whether in village, town, or city.

Remember the day of "directions" for "what to wear and how to appear" is ancient history. People who can afford high-priced portraits are generally well dressed, and their costumes can be made to appear to advantage by skilful lighting, if you know how.

Again, to the class who can only afford ordinary grades of portraits, such directions are generally superfluous, because their limited means allow them only a small variety in dress.

But the following clause will offend neither high nor low, and covers the ground, viz.: "Please bring plenty of gowns, that you may have a good selection in your proofs."

How easy it is to ask a woman to bring several dresses. She considers it a compliment, and nearly always complies, accepting it as an honor to have "so much pains taken with her."

Then, when she arrives with her gowns you can freely discuss tints and styles without giving the slightest offence. It at once proclaims you a past-master in portraiture, that you know something about costumes as well as cameras.

From all parts of the country I receive scores of letters of inquiry—"How to do this?" "How to do that?" "How would you improve my pictures?" "What must I do to better my business?" "I understand photography perfectly, but wish to make better pictures, that my trade may grow by reaching a more appreciative class; what shall I do?" "Please tell me how to get up a really nice booklet," etc.

I wish I could personally visit a great many studios, staying a few days in each, answering questions about advertising, and showing how to put pictorial effects into their photographs—how to compose a picture. There are hundreds of little points about picture-making and



business methods that could be answered so quickly if face to face with the inquirer.

The effective booklet must be worded very carefully—a little “froth” dashed off at random, or a little chit-chat, will not do. It must be written by some one in intimate sympathy with the portrait business.

The writer of booklets on clothes-wringers, horseshoes, insurance, and “everything” can present only *general* arguments. But to have the booklet read right from the customer’s standpoint requires a sympathetic pen wedded to the business.

Next, the illustrations. If you cannot afford good half-tones, *well-printed*, use no illustrations at all. Because a poor or even *half-good* illustration is *positive* danger. The cheap appearance at once proclaims yours a *cheap* studio. (People of sense reason that if you put out such a botch of a booklet, your portraits will have the same character.)

One or two really good illustrations outweigh a volume of common cuts; and all the rhetoric at your command will not rescue the poor impression given by the poorer cuts.

The printing, too, demands the most exacting attention. There are plenty of places where artistic printing can be had that costs no more than an in-artistic job.

The country newspaper and job office combined is no place to have a fine booklet printed. Place your order with a first-class concern offering a fine variety of type, border, rule, etc., and who make a specialty of half-tone printing. Bear in mind, please, that the best half-tone block made can be so poorly printed as to defeat all the good presswork in the solid or descriptive matter.

I have seen attractive-looking booklets (from the outside) which, upon opening, disclose the most beautiful typography fairly groaning with despair because the adjoining illustrations were flat impressions, smudgy, and disappointing, on expensive paper, too, which all the more emphasized the *caricature*. It is like wrapping a raw potato in a silk scarf or mounting a miserable print on immaculate vellum.

Attractive booklets can be arranged without illustrations, but the booklet that has “nice pictures” in it will do ten times as much good. Have no fear, the extra outlay will pay good dividends.

What is your opinion of the booklets that come to your desk? Do you not, by preference, read the ones that have good pictures?

Whatever your specialty, you should have special booklets upon the same ready for immediate use.

If babies’ and children’s portraits are a feature, you should have on hand a supply of pretty illustrated booklets all about babies, which you should mail to every mother in your field. Watch the birth-list in the newspaper, and when baby is old enough—three or four weeks—mail a booklet to the mother with a nicely worded letter.

If brides’ portraits are your hobby, send a well-illustrated booklet with brides’ pictures, and a carefully considered letter to every lady in the land who has just taken to herself a husband. Consult the marriage list in all the newspapers in your field for data.

Again, should copying and enlarging be your specialty, watch the death list in the newspapers, and after a reasonable time—say three or four weeks—mail an illustrated booklet on enlarging and copying to the family, with the right sort of a letter, and so on with all branches of the business.

If the people thus addressed do not respond within a reasonable time send another copy of the booklet with a different letter. Do it the third time, if necessary; and if the business can be brought your way at all the third letter will generally bring it.

These letters, however, must be written in just such a way to do the work. If you haven’t the skill to build such an epistle secure the services of someone who knows how to arrange “follow-up” letters.

This brings us face to face with the old argument, the sound argument, upon which all advertising is based, *viz., persistency*. Keep at it everlastingly until the people believe in you and your work.

A word about mailing your booklets:



Always send in a neat envelope, sealed, and with a two-cent stamp. This will ensure it being opened and read by the person addressed, otherwise it will go to swell the waste basket.

Have *no* printing at all on outside of envelope; it then appeals to the recipients privately, and will command more attention.

Use good stock for your envelopes. No thin, manila bound, but an envelope of good weight, substantial, and of light tint, preferably white.

Besides the regular annual distribution of booklets, you will have occasion to use them very often to attract visitors. Keep your eye upon the society columns. Every visitor announced should immediately receive your best booklet. Keep your eye upon the community as well as your camera—a little long focussing outside the ground glass will develop many a dollar.

Summed up, a modest "ad" in your newspaper, together with good booklets, issued at proper time, are strong levers to lift trade—IF the "goods" (your pictures) are all right.

This is the all-important question right straight to you. Are your goods all right? If not, all the booklets ever printed cannot help you. Remember, your work is your *best* advertisement.

It stands for or against you. See to it that your work is in your favor. Study *picture-making*—COMPOSITION, I mean. You'll certainly need it in the near future. There is a class of customers in every village, town, and city that will pay well for a picture, as well as a likeness of themselves. I am speaking from experience, having developed a high-priced trade upon "*pictorial*" qualities in my portraits—qualities that command \$10 to \$45 for twelve choice prints, without an argument.

I receive hundreds of specimens of

portraiture from all parts of the United States, with inquiries relative to booklets and other mediums of advertising. But alas! a large number of them lack the pictorial element that would place them high on the plane of picture-making. The chemical work is faultless, but the pictures lack the assistance of good composition to command high prices and a reputation for you as an *artist* as well as a photographer!

Do you aspire to reach the top round of the ladder of photographic success? Then arm yourself immediately with a thorough knowledge of composition and pictorial qualities. Not only know about them, but know how to do it yourself!

This is an age of action, and those who dilly-dally along the wayside, putting off their *composition study* will silently drift into the rear ranks.

Sound the alarm! Don't be satisfied to rest on your oars! "To rest is to rust!"

Many a professional photographer has quietly prepared himself along the art line, and has built for himself a prominent name and envied business; many an amateur, too, whose average knowledge of chemicals and camera is way below yours, is making portraits, good ones, too, full of art feeling as well as likeness. Silently they are usurping your field. Will you stand idly allowing them to outclass you? Will you let their knowledge of composition walk away with your heritage?

Printer's ink will do much if backed up with good work. But have a care. There are changes going on; rapid changes. Look to your laurels. Study, study composition and pictorial photography; put it in practice. Then your booklets and other ads. will win your a substantial patronage and an honorable place in the profession.

# RUNNING A HIGH-CLASS STUDIO

By L. HAWEIS

THE method of running a studio depends upon three conditions: What you can do; How you do it; and Whom you do it for.

The photographic studio is a trade or profession—is, in fact, what you can make it. The less of the personal element that predominates the more of a trade it becomes, and *vice versa*.

What, in short, is it that you want to do? Are you after the volume of trade or high prices in particular? Will you cater to the masses, the vast and predominating demand for a reliable map of the human animal dressed as the dolls of social requirement? or. Are you striving to appeal to the nobler instincts, character, and refinements cultivated and fostered by the high exponents of a latter-day civilization? Given the ability, this question, or something like it, is the first that you will have to decide. And you will decide it by what you can read into the practice of it in the way of modification with reference to your own particular necessities and devotions.

Personality is the most elusive thing in the world; but, whatever it is and whatever it means—that is, how it reacts upon our fellow-mortals and to what end—these considerations at any rate may be differentiated for the purposes of this note. We can say, for instance, that the man who attracts us, with whom we feel personally at ease, whom we respect before we know (whether we respect him afterward or not), who can make us forget ourselves in the interest of his society—that man has Personality.

I mention these points in illustration of that phase of personality which lies on the surface; that, like the sparkle of some precious metal in a chunk of dross, attracts and interests from the outset. And, for a client, the moment he enters your studio, to feel interested and attracted by the personality of the photographer is half the battle of the business.

And yet this man may be a cold enough fish when you come to know him better. That points to the fact that personality on the surface only serves one purpose—if a very valuable one; that other, and perhaps “better part,” reveals itself only gradually through prolonged intercourse and better acquaintance. Interest must be sustained beyond the reception-room, beyond the skylight, and beyond the threshold of your business. It must invade the innermost sanctum sanctorum of clients themselves; its influence must be felt there, where the surface-sparkles cannot reach to illuminate.

To be poor in either of these qualities, gifts of personality, is to be the worse for it: In the first case interest will be inspired but not sustained; in the latter, the interest can only operate after the tools of enforced social intercourse have mined and brought it to light.

The next asset of the photographer, whatever his personality, I put down as Tact. Tact may or may not be a feature of your strong-personality man, but if it is not he will suffer grievously in his business relations with clients.

It has been said, and very truly, that the money of a photographic business is made in the reception-room; consequently, if you are wanting in tact and resource, if you are naturally impatient and have difficulty in concealing annoyance, leave the business end of your establishment in the hands of one perhaps not so gifted as yourself, but who has just that modicum of tact and good manners which in many businesses, and it may be in yours, is worth all the personality of a dozen others like you rolled into one.

After all, your reputation must count for something. People come to you—the heaven-born artist—knowing that you can and will do them justice. They come to you for pictures; take them,



BY MAY L. SMITH  
BINGHAMTON, N. Y.





and without unnecessary delay. Prices and styles with proofs. That is the ideal way. The discussion of prices with such as I have in mind is the fly in the ointment; for, remember, the best class of client, to whom perhaps you are no whit inferior intellectually, is in its way just as touchy as yourself. A dollar more or less to these people is nothing, provided they get what they want. Of course, even the best studios are not visited by exactly the same class of people throughout. That being so, how much better to leave all classes in the hands of your receptionist! Rather than talk prices let her prove and exhibit to clients the value and virtues of your work. Satisfied with this, the last qualm is dissipated, and they enter the dressing-room fully aware of the satisfaction they will receive at your hands.

But there will enter those—strange to the special working of your establishment—who will demand prices and styles before they sit; and there will be times when the proprietor will be quite unable to avoid them without rudeness. In that case, he must do the best he can. Under these circumstances, he would be well advised to have a little conversation ready. Having replied to a number of questions in terms of cash, he may find his opportunity in such wise:

"But I really dislike discussing prices, especially at this stage. It seems to rob me of my chief pleasure in taking pictures."

Thus, the personal note is introduced, and, noting the effect of this little speech, he may then confidently continue:

"You know, what appeals to me is that my clients should feel satisfied from my pictures that I can do them justice. If that should be so in your case, this is what I propose to do: You have told me what you would like," (or "I have seen which are the styles you most favor"), "but I would suggest that I take several different positions in several different sizes. That is my usual custom. It really is more satisfactory than sitting for one particular style and size, as it gives you a choice you would not otherwise have. It also affords me an opportunity of showing what I can do in your own case, and it will cost you nothing but a little extra

time. Indeed I would go so far as to say that, if you have not ample time at your disposal now, I would suggest you make an appointment for some other day when you would be more at leisure. Nearly all my work is by appointment; but my convenience in this matter shall be yours. Then when we have the proofs you can decide which shall be finished off. After all, we can do nothing without the negatives, and you can have them completed in any style and at any price which you may then decide upon. What do you think? Shall we try several positions, including, of course, some of those you fancy?"

In nine cases out of ten this personal bait will be swallowed—as, indeed, it should be. It sounds good, to most people, in my experience; it proves workable, and the principles are sound.

"And if none of the pictures suit, how do you arrange?" perhaps the client asks.

"Well, you can sit for your pictures as often as you like. No charge is made for this. That is the only way I can guarantee my work; and by that means I am sure that none but satisfactory pictures leave this gallery. But I very rarely have any re-sits, owing to the number of positions I take in the first instance. Re-sits are troublesome to clients; but those who desire to re-sit are welcome as often as they care to visit me for that purpose."

This is straight talk. It is more: it is straight dealing. It is more: it serves to emphasize the personal equation for which people will pay.

And the third requisite is Taste.

As soon as a client enters your premises, she should find that about her which will move to admiration, or at least, not incite to antagonism. Everything should be orderly, clean, and in good style—the style of the proprietor—for "style is the man."

If you care to make it so, the reception-room can be "homely," furnished and upholstered much as you might choose for a living-room, not sacrificing anything, of course, in the way of viewing convenience. The lighting of the pictures should be good, just enough and not too much. It is hardly realized,



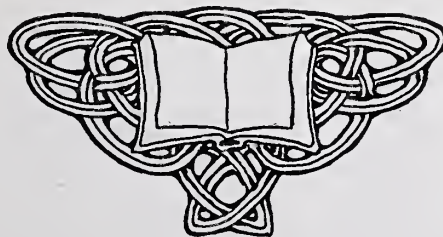
or, at least, it is rarely practised among the fraternity, or even by exhibition committees, that photographs are best seen by reflected light. This is fairly common to find in the case of, say, big-framed portraits; but the principle applies just as much to small work, and, given the taste and desire, it should not be impossible so to arrange practically all pictures on show in such a way that they are never seen in direct artificial light. If daylight, it must at least be soft and diffused.

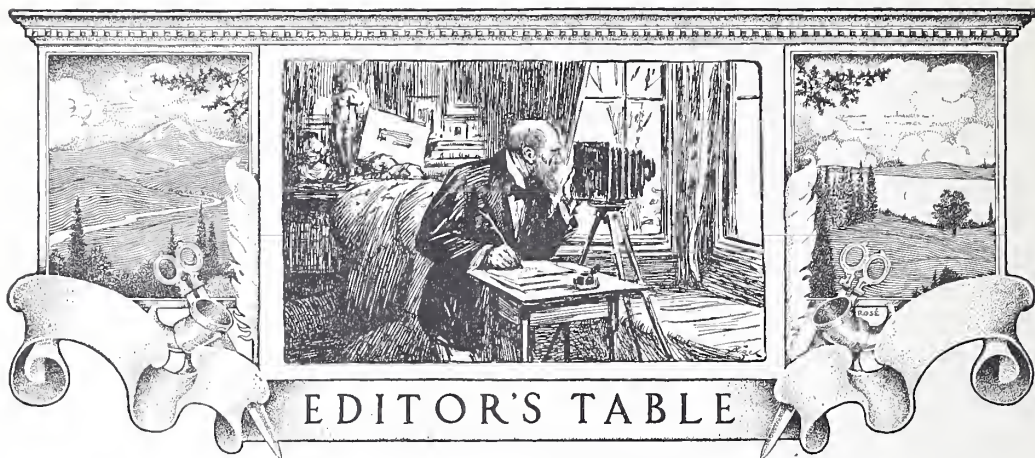
And the less obviously a showroom is a showroom, the better sort of showroom it will be—the more restful, the less distracting. Relegate to an ante-room, if possible, all evidences of business—desks, ledgers, pigeon-holes, and the like. Keep the cash department in the background, as you may find it, as I have found it, more satisfactory to keep the actual discussion of prices until the time you can discuss such matters with the proofs before you. The mere viewing of the proofs tends to distract clients' thoughts from the cash consideration. This does not necessarily mean that you take no deposit, although, in the case of guarantee work and no charge for re-sits, deposits are apt to lose their extrinsic value. It might be your business rule that every client pays a fixed sum before sitting—say, \$10—what you will, that is your affair. But with the class of client I have in mind you will probably find you can do without even this business method. If so, all the better. At the least, you can use your discretion. And this is easily done, since your receptionist, in the

course of her duties, may mention casually that the same nominal deposit is required of everyone as a matter of form. The best time to arrive at the actual price of the order is with proofs before one. You stand a much better chance then of getting your full price without rebate, and you can, at the same time, best prove your reasons, if required to do so, for charging such a price.

Every picture, you can then explain, is treated on its own merits. Thus, to say that your mounts are designed by yourself and executed under your direct personal supervision on the premises, and not in California, or Montreal, or New York, means that they are exclusive. You do not buy ten thousand cards and retail them with pictures attached. You do things differently. Having made the pictures you proceed to build the mounts to suit them. This means that you provide a more tasteful picture, regardless of price, than your clients are likely to get elsewhere. This line of talk presents a direct appeal to the client's taste for quality, exclusiveness, and personal attention, which in most cases will obliterate any desire to cut price, a thing which you must never do under any circumstance, unless you can see exactly where is the actual tangible return for such concession.

Is this business? I believe it to be business of the best sort, since such methods tend to carry the interest of the transaction into the homes of clients, while at the same time it lifts the whole matter above the level of an ordinary business deal.—*British Journal Almanac.*





## IMPROVING YOUR WORK

**P**OSSIBLY a word or two urging the necessity to keep ever-present in one's mind the desire to do fine work may not be amiss, as at times one is apt not to give much thought to the matter. A dozen photographs reach more people than the most elaborate and expensive form of advertising and are subject to a varying and merciless criticism. Rest assured that if you send out a picture with something lacking in it some one is going to find it out, and presto! away goes its advertising value, for if one person mentions it the rest see it immediately, and the picture is useless as a business getter.

Set your prices way up and then hope for greater in the future, and in setting the price consider the time you have spent to acquire the knowledge and experience. The public who buys your pictures and makes you a permanent business connection is looking to you all the time for finer and more dignified work. It may seem strange sometimes that people who display taste and spend money on other things that they surround themselves with in their homes, buy cheap (and, of course, inferior) work in photography. The explanation can only be that they consider them temporary and in time will invest in good work from a high-priced man, who from that time on will have a stronghold in the family simply from comparison with the former work; for invariably

they will avoid the man from whom they bought in the first instance, for it will be impossible for them to associate his name with a quality output.

Good work means time, patience, and skill, and some more skill, also the employment of good assistants and the purchase of good equipment. These should be added to the cost of production.

Be absolutely sure that your prices are at a correct figure. The men in the front rank today arrived there by perseverance alone, by an insistent hammering of the value of their work in the ears of the public, and then when things began to come their way by keeping the standard as high as before and mercilessly criticising every print before sending it out.

One occasionally hears of a man who has established himself by an effect which almost amounts to bad photography, when criticised from the technical standpoint. We refer especially to the inclination to produce so-called impressionistic work; but undoubtedly the leading men would agree in saying that it is a bad and most precarious way to try and attract attention. Perhaps it may be underexposure and printing out of focus, or again overexposure and a striving for tonal effects; but sane, far-thinking workers must insist it is incorrect, as it is unsuitable for the everyday customer, which brings to the front the fact that many of the men producing these effects choose their



own subjects, as a rule, people with interesting faces, literary men, character subjects, and others which by themselves attract attention. We venture to predict that it would be a huge comedy to put a new-school man in the studio of a fashionable and successful professional photographer. We merely mention this to accentuate the artificiality which surrounds the absurd praise given sometimes to productions of the new school. As a rule, however, impressionistic work of merit usually has individuality, which is a very good point in its favor. The works of Rembrandt, Franz Hals, Velasquez, etc., show that they did not put their subjects off in some dark corner and try to produce some queer effect, but placed them in a good round light that was brilliant and snappy and then went ahead with a clear thought of the subject's characteristics predominating their minds.

It is almost impossible to go wrong if you stick to the examples set by the Old Masters. Take, for instance, one of Rembrandt's strong points, his wonderful shadows; they are simply marvelous, deep, mellow, and tunely shadows; luminous shadows, *not mud*. If one could discover a way to get such results in a photograph he would have a name immediately. How is it to be done in photography, who knows? But when one considers the enormous artistic betterment that has already taken place one cannot help feeling that it will come in time. We were talking to a man, not long ago; who has produced some very fine etchings, a form of art in which it is probably possible to secure more depth than any other medium, and that was the point he thought most open to criticism in photography—the meaningless shadows.

The truth of the statement that you cannot go wrong or be in error to stick to the ideas of the Old Masters is emphasized if you will consider the work of the different leading photographers. One man's work is reminiscent of Gainsborough—the long, flowing lines of grace all suggesting him; another may suggest Rembrandt, perhaps being carefully thought-out arrangements, as were Rembrandt's. Then compare another who,

possibly, is working from an entirely different standpoint. His work may suggest Sargent more than any other painter, as they may be spontaneous and have rugged light effects. Of course, though the thoughts are in touch with the painters, they necessarily do not slavishly copy them in technic, that would be stagnation for photography; any one with experience realizes that the means of expressing texture and color are entirely different from painting.

Of course there is great difficulty in knowing where to stop, and it takes a certain amount of skill or knowledge of art principles to know what to adopt and how to adopt it. Certain forms of composition which are remarkably interesting in a painting are impossible in photography. This is especially noticeable in group subjects. We have seen paintings which were fine and charming in the original manner in which they were grouped which would be the opposite extreme in photography. Photography by a clever photographer is supreme in the rendering of texture and facial expression, and if you will analyze the success of leading men you will find it due to ability in one or the other, and in a few very rare cases due to both.

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## CRITICISM

IF the successful photographer is asked as to the causes which have helped him he will invariably include, and often give a prominent place to, the hints and advice of his friends. He is right; the suggestion from one who has understanding to give it is a very necessary part of our education, and happy should be the man who can claim it.

Just think about this same advice. The result of it is to help the photographer to better work, and therefore the logical conclusion is that the work has faults, and that these faults have been pointed out. The work may not have been condemned, but it has not been flattered. The man has had a sitter in his studio, and he has done his level best. The sitter is pleased with

the result—so is the photographer. The friend—the brother photographer, probably—looks at the picture. He has not been concerned in the manufacture of it, and so is better able to see at a glance if anything is out of gear. As a photographer he may appreciate the work and thought which has been put into the print, but as a “candid” friend he puts his thumb over one spot in the print. It may be that the producer of the print at once notices the fault, or there may be some discussion on the point. More than possibly, it will be decided that after all the fault is no fault. In any case the discussion settles the point, or at least leaves it simmering in the photographer’s brain to be finally decided later. And so, if it was a fault—and often enough the photographer decides that it is—it will not run through his work until the end of things.

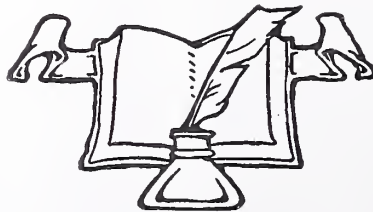
How many photographers are there who do *not* welcome that kind of advice commonly called criticism? Very many; we almost fear a very large majority. How common it is to be shown a picture—or a score of pictures—by a photographer who asks your opinion when he means that he is fishing for flattery. It is a rather puzzling attitude. It would have been thought that a photographer would have welcomed rather than resented criticism. And doubly so, since it can scarcely be denied that the inertia of thousands of photographers as to the quality of their work is one of the leading causes why so many of them are in an insecure position; in dread of the other man and in hatred of the amateur.

Criticism is not always an easy thing. Very often a man’s work would require an essay to point out what is the matter

with it. For sometimes a man will show work which plainly says that he has attained a fair proficiency in the technic of photography, and yet has not grasped the most elementary meaning of picture-making. How can you tell him such a knock-down fact without making him angry?

There are several things necessary if a photographer would rise. He must always keep a wide-awake and alert brain around his work, and he must feed and educate his brain with the books and the opinions of others. In some respects the spoken opinion is preferable to magazines—both are necessary. In the magazine it is so easy to read the faults of others, and this is comfortable, but not helpful; in an honest criticism we read our own faults or mistakes. A magazine ought rather to start a thought than to dogmatize a fact; and it is so easy to evade the thought and pass on to the next page. In a conversation the effort to think is forced and is followed up.

The good fellowship which has been so much fostered by the conventions has already led to more than one organized club where photographers meet and exchange opinions; and it has created quite a habit in a few cities of intervisiting among the galleries. It is a good movement, and should be helped along. The exchange of criticism is mutually helpful, and none can judge the points which make or mar a photograph as well as can a fellow-worker. Let us then have done with the old notion which angled for flattery and preferred a blind self-deception to the healthy pleasure of knowing one’s work and knowing that it is good.







## PRACTICAL PAPERS ON STUDIO WORK AND METHODS

### Getting Ready for Christmas

I SUPPOSE that almost every studio photographer is now looking forward to Christmas with somewhat mixed feelings, the extra cash coming in being somewhat discounted by the long hours of work. Now much time is wasted in many studios by using apparatus that is not in perfect order. Dark slides that require careful handling to prevent them falling open, cameras with loose backs, and many other little defects of a like nature waste absolutely hours in some businesses. It may, therefore, be useful to look over some likely causes of trouble and indicate how they may be met. This is a good time to set one's house in order, because although a defective piece of apparatus may work tolerably well when time is taken to humor its little whims, when it is used at a real rush job, such as most jobs will be in the coming season, it is liable to fail lamentably.

Let us take the camera first. Almost the most common fault is a loose back, caused by the locking nut failing to grip. This, of course, leads to out-of-focus negatives. Sometimes all that is required is a washer between the nut and the camera frame, but it is often necessary to renew either the nut or the pin on to which it screws. Any of the big makers will supply small fittings such as this. Any holes in the camera bellows should receive attention. If large, they may be covered with black court-plaster, but if only small pinholes they may be filled with a paste composed of powdered graphite in seccotine. This is also handy for filling in any holes in the woodwork. Cracked lens panels are not uncommon, but they should be replaced at once, or trouble is sure to ensue. If it is inconvenient to replace them, strips of wood should be stuck on the front of the panel across the crack, and the back should be covered with black velvet. This last is a good tip for all lens-boards, as it not only prevents any possible light-leakage but also makes sticking of the lens-panel almost impossible. However, all cameras will not permit of the slight extra thickness.

Any missing screws should be replaced; sometimes they seem of very small importance, but

their absence throws a great strain on those that remain. If the screw-hole has become enlarged it must be pegged with wood; match-sticks are often useful; they should be smeared with seccotine, forced well into the hole, and then cut off flush with the woodwork.

It is a risky thing to use an unsafe dark-slide at any time, but when doing rush work it is simply asking for trouble. A most annoying defect is the coming unhinged of the center partition. This usually becomes slightly displaced with the result that the slide either refuses to shut at all, or shuts incompletely; in the latter case fog is almost sure to result. Cloth hinges may be replaced by anyone of average dexterity, but metal hinges, unless it is just a case of lost screws, should be handed over to an expert. The catches holding the slides shut often become loose, with disastrous results. In the case of the L-shaped catch, now generally fitted, a tap with a hammer, to bend in the outer end of the L, will often do much good. Safety catches to prevent slides being drawn except when required, often get out of order, but a screw-driver, a pair of pliers, and a little common-sense will usually bring them right again. Tripods are usually kept in pretty good repair, because it is next to impossible to work at all with a faulty tripod; but sometimes the ferrule becomes loose, which results in slipping, and much annoyance.

I have left the shutter to the last of the camera parts. Sometimes a roller-blind or studio shutter may be improved in its working by cleaning its working parts; a few slight adjustments are within the scope of the average "Pro," but serious damage is almost sure to result if anyone but an expert tackles the repair of a diaphragm shutter.

The lenses are unlikely to benefit by any attention other than a good cleaning, which they should certainly have.

To depart from the actual operating gear: The enlarging lantern should be overhauled, and lamp-house and illuminant thoroughly well cleaned; but the most usual trouble with lanterns is a jerky focussing movement, which is often caused by looseness of the clamping screws. A great improvement may often be effected by

rubbing graphite from a leadpencil in all the places where wood slides over wood.

Any stray light from the lamp-house or from the body of the enlarger should be cut out; it is a most frequent cause of fogged paper. The easel will probably repay a little attention; the clips, bars, or whatever it is that holds the paper should be adjusted, and if the easel is one of the type that folds back for placing the paper it should be seen to that it comes up truly vertical, or else it will be impossible to get sharp focus all over the enlargement.

Printing boxes are usually kept in good order, because any defect is at once noticed; but it is as well to see that the arrangement for providing pressure on the paper is in order, also the felt pad should be renewed when becoming worn, or else unsharp prints, and even broken negatives may result.

In the dark-room the safe-light should be cleaned, broken dishes or even cracked ones should be replaced, and any taps that require washers must be attended to.

The dry-mounting press may be heating unevenly, which may result in the print sticking and the fissure failing to do so. This may be improved by a thorough cleaning out of the heating system, and, in the case of gas, by having the pipes blown through.

This note is not intended to be a complete list of all the ills that apparatus is heir to, but it may serve to point out a few of the most usual points to look to.

In conclusion, it is always as well to get in a small stock of "breakables," such as focussing screens, dishes, and bottles, before a rush. Then any accident is not so serious.—*The British Journal of Photography*.

### The "Finished" Appearance of Good Quality Work

"FINISH" is to a photograph what paint is to an Atlantic liner. Which is saying that though finish may be only a minor part of photography, no photograph will get very far without it. I do not mean by this that every print must pass through a black-and-white artist's hands before making its début, but its finished appearance must be at least as good as if it had received such attention. Such is the appearance of professional quality work, but it is not invariable with all professional work, or with all quality work either.

Broadly speaking, the professional considers finish as an individual process and pays attention to it in proportion to his standing, the class man studying it extensively, the quantity man not at all. Of middle-class photographers, some obtain finish deliberately, and some unconsciously; that is, some employ workmanship to correct and tune up the work when it has left the technical worker's hands, while others rely more on attention to details throughout to bring about results that need no tuning up.

Among the former I have met two distinct schools, one as rare, I believe, as the other is common. The one builds on after treatment of the negative; the other relies on working up the print.

There are also two classes of purist photographer—the absolute and the moderate. The former is not often met with among professionals—his system is certainly worth considerable—but it is the moderate system that has most to recommend it.

To take them in the order mentioned, the method which depends on a negative artist seems a peculiar one, the idea being to obtain negatives by virtue of pencil, knife and aerograph from which junior labor can produce first-class prints. Combined with the employment of an expert negative maker this is a reliable way of producing standardized results, but without the technical man it is poor photography, even though it may produce the finished results desired. It has also the disadvantage of being insecure, depending, as it does, on the super-normal skill of a single individual.

Dependence on "working up" is safer than relying on a negative artist, for black-and-white workers are more easily obtained, and impossible prints can be more easily replaced than bad negatives can. At the same time this system, if carried too far, has its bad points. The presence of a corrective factor is apt to encourage an amount of scamping in other departments. There is always the thought that minor carelessnesses and mishaps do not matter very much when there is someone to "touch it up" or "spot it out." Again, though it is arguable whether a bad print can be touched up and spotted to equal a good print or not, it is certain that the former cannot excel—not as a photograph anyway. Hand work on prints has its advantages, however, as will be seen in the paragraph on the "moderates."

The absolute purists consider the picture's finish (along with everything else appertaining to it) from the moment the decision is arrived at to make the picture; that is, before the first plate is exposed, and by careful attention to every detail produce with a minimum of retouching prints that if correctly trimmed and mounted need no further finishing. Some may think this hardly possible but really the photograph made purely by good technic can be equal to and more convincing than any hybrid product. Unfortunately there is one disadvantage. Admirable as the method is for a serious amateur—usually most keen on fakes and doges—the amount of deliberation and care necessary to do it justice is more than the average professional's quantities of work and rate of working will allow.

This brings us to what I have called the moderate way, which is the commonest of all, and if worked out with deliberate thought for the final appearance (and quality, of course) of the print is the soundest method of practising photography.

As there are no extremes in moderation, neither scamping at one end or overexerting at the other is permissible. Retouching and working-up are appreciated and made good use of, but they are not expected to perform miracles or to cover up bad photography. Therefore operators and technical workers must do their bit independent of after-help. This makes for good work, while the presence of retoucher and artist gives a certain amount of latitude which is very useful in busy times.



Let us examine the system more closely. To begin with the studio, the operator in charge considers not so much certain unique poses or tricky lightings as he does the finished appearance of the future prints. This will embrace the other, and in fact everything he does as well. To take a picture properly he must know what kind of result he is aiming at. Knowing that, he knows, or should know, what lighting, what kind of plate, and what exposure are best calculated to give it. Not relying on others, he works with intelligent deliberation. The same with the plate development. By treating the plate with a view to the *finished appearance* of the prints, a negative is obtained which is suitable for its intended purpose.

A good negative is a source of pleasure to a good retoucher, and the better it is the less work it needs. And the less work it needs the more likely it is to give universal satisfaction.

The foregoing assertion will meet with some opposition, but I have proved it to some extent by taking portrait negatives under all sorts of conditions, and producing by technical and "moderate" methods results that were more pleasing than first-class studio studies.

The printer of negatives made without system is likely to make prints in the same manner and of a similar nature, unless he or she is definitely required to get supernatural results. When this is the case the work is harder, and more time and material are used than would be if the negatives had had their right share of careful attention in the making. Given the good negatives, it is easy to get good prints or bad ones, the quality in this case depending on the printer and his or her apparatus. If these are inefficient, then "finished" results will not be seen in the printing department, but a lot of work will be thrown on to the artists which might have been avoided. For instance, careless work or poor tackle (by which I mean materials as well as machinery) will produce prints and enlargements suffering from such things as false contrast, wrong key, want of detail, spinelessness and bad "color," all of which go to mar the finished appearance of the work, none of which can be wholly corrected by working up even were the latter obtainable gratis and without use of time.

The patching up of such faults as the above and others has the same effect on the artist or worker-up as covering bad negatives has on the printer. When such faults are rare, the predominance of good work encourages him and also allows time to give concentrated attention to special work and to those faulty prints which will happen in the best ordered houses. I remember once having a most intricate job to complete by a certain date. It was one of those impossible coying affairs where even the most careful technic must leave most of the picture to be drawn in by hand. Had I been able to settle down to it in earnest it would have been profitable, interesting, enjoyable and a good advertisement. As it happened, however, I was snowed up with an epidemic of poor work at the same time, with the consequence that neither the special job, the other work, or myself were what they should have been.

Which concludes my argument for the careful

practice of a system where every worker has the finished appearance of the work constantly in mind and works accordingly.—B. J.

### The Choice of Materials

THERE is always present among photographers a desire to know what other members of the profession are using, and they are actuated in this by two motives—one is the tendency of imitation of others, and the other is a natural curiosity as to just what is most generally considered to be the best that the market affords. Either motive is good, and, if the inquiries are sincere, it indicates the presence of an ambition to improve the quality of work or to make more money. It is this nervous activity that keeps up the fire of action and aggressiveness that has made the American a symbol of business supremacy the world over. The habit of "wanting to know" is good if it serves to whet the ambition.

In the matter of plates the popularity of any certain brand is generally an indication of its finer qualities. The facts of the case are, that all plates now on the market will yield good results, and it is in the minor details that the popularity of any one brand is established. The first factor is the uniformity and dependability. When a brand works the same at all times, in all climates, and with all kinds of waters it has a big advantage over a plate that varies with the season, or the temperature, or the character of the water. Nothing is so vexatious as to be working along certain lines and then to have a lot of plates go wrong and to discover that it is necessary to make some vital change in the method of handling in order to get back to the standard that has been set. It may be possible that this is due to the manner of making the emulsion, and it may be that the nature of the plate makes it susceptible to such changes. Then, too, it may be the user, for we have found that human nature is very different, not only in different people but in the same person at different times. No man handles a tool with the same degree of skill at all times. He has his "off days," when things will not go right, and, while he is not conscious of treating his materials differently, it is a fact that he is doing this very thing.

Furthermore, no two men treat a plate in exactly the same way. They may work side by side and not get exactly the same results. Therefore a plate that will work perfectly satisfactorily in the hands of one man might not work the same in the hands of another. The consequences is that one man's opinion is nearly as good as another's, provided neither one is an ignoramus. It is practically impossible to state positively which is the best plate made. The nearest that can be approached to a correct answer is to state that there are three or four plates that rank as the most uniform in quality and general workability, and the individual can safely select any one of them and stick to the one that is best suited to his particular style of handling.

In the matter of paper it is pretty much the same, though there is probably a little more variation in the different brands than there is in the lines of plate. The kind of negative a man turns out most regularly goes a long way toward



determining the kind of paper that should be adopted, for the negative has a great deal to do with the character of the final print. A light, clean, crisp negative will work well with one brand of paper and poor with another. A heavy, strong negative will require different qualities. Furthermore, the predominate style of a workman may require certain qualities that another style will not. For instance, light, sketchy vignetted work and heavy dark background, low toned pictures will not show at their best on the same grade of paper. Therefore there is good reason for a difference of opinion as to the relative merits of the numerous brands of paper now on the market, and unless prejudice enters into the question it should be determined according to the character of work that forms the bulk of the business of each gallery.

Cards and mountings offer a greater field for a choice of material than almost any other article used in photography, and it is a department in which greater care should be exercised. The demands of the trade, the preference of the owner and the style of work produced are all factors that should have more weight than the arguments of the maker or salesman who is not conscientiously considering the welfare of the purchaser. It is like style in clothes. A sober matron has no business in the gay colors and beribboned folderols that become youth. The clothes should be worn with some regard to the character of the wearer. Mountings should be purchased with some regard to the user. The steady but not overly brilliant workman should use those designs that are excellent in quality but not extreme in style, while the more talented and, perhaps, more brilliant workman may indulge in the more radical styles and his work will carry them gracefully and effectively.

A photographer who cannot make a style that is dashing and distinctive should not attempt to use mounts that are made for and adapted to work of that character. He should stick to the more conservative styles and shapes. A plain cabinet picture is inappropriate when mounted in a long panel folder that is extremely extreme, it spoils both picture and mounting; but a sketchy panel picture properly worked up and made for the style will set off the mounting, and the result will please that element of patronage that is appealed to by the smart and unusual article. A photographer whose abilities and imaginations lead him into a desire to make extreme styles, should give a little rein to his ambition and, even if the customers do not ask for the work, make a few extras and put out for exhibition some of the more novel styles. In time people will begin to appreciate them and the demand will gradually grow, and a photographer who can and does make unusual things always attracts more attention and gets more advertising than one who sticks doggedly to the old conventional forms.

In studio appointments there is a wide latitude for choice. Many photographers in small places, that cater to a trade that is liable any day to come in with muddy feet and the soil of their work, are of the impression that a carpet or clean floor covering is not only useless but a totally unnecessary expense. Therefore the floor is neglected and becomes splintered and

full of dust and dirt, and this spreads to the walls and other fixtures, and it soon becomes impossible to keep the place in a presentable condition. Gradually everything is neglected, until the old shack is a sight. In traveling about we have found a number of studios in communities where the farmer and working man are the mainstay of the business, and we can state from actual observation and knowledge that it is possible to keep a neat floor in a country gallery. A hardwood floor is easily kept in shape if occasionally waxed, and it seems to be the most satisfactory, for the dust and dirt do not stick to it, but come off easily. Then, too, aside from the path made from the entrance to the desk, which gets the bulk of the wear and dirt, it is possible to lay rugs and matting, and no matter how rough a customer may be, he will respect a clean floor and will not track in mud and dirt if he sees that an effort is being made to preserve a clean and attractive studio. If the place looks dirty when he enters, he will have no compunction about tracking in more dirt or throwing things on the floor.

Lace curtains and gew-gaws are not necessary. We have seen a number of most attractive places where there is hardly a hanging and, occasionally, no rug or carpet; but the cases, tables and chairs, and other fixtures are all in harmony and kept clean. Personal taste has a wide field in the selection of studio appointments, but if there is no particular trend to the taste it is difficult to make it attractive, no matter how much is put into the room. This is also true of the posing room or studio, better known as the operating room. Poor equipment will do good work in the hands of a good workman. Frequently it is a wise policy to get new equipment and accessories, not in order to improve the work, but to make an impression on the customers. In selecting new grounds, chairs, or other adornments of the posing room, thought should be given to the effect on the customer as well as on the convenience and help in doing work that exhibits more class and charm. Many think that it is not necessary to buy new appointments if they will not aid in the improvement of the work. This is not always true. It is wise to occasionally get something new for the effect it will have on the customers. It pays to cater to their sense of appreciation, for they are the ones to be pleased, not the proprietor.

It is hard to convince photographers to put in new and attractive things when they are not inclined to believe that it will pay. It will not pay to simply renew some of the old grounds or accessories or equipment with things just like the old ones. To choose something entirely new and different, something that will make a noticeable addition to the place, will pay, but the matter of choice must be well considered.—*Trade News.*

### Commercial Work and the Portrait Photographer

SHOULD the portrait photographer take on commercial work? On this question, which is constantly coming up anew, the following points should be given consideration:

1. In a small town and in some small cities it is necessary for the photographer to do all kinds of work in order to maintain sufficient volume. Many photographers prefer a small town for this very reason, enjoying the greater variety in the problems presented.

2. Specialization makes for greater proficiency. The photographer who is in a position to devote himself exclusively to portraiture will think more intently upon portraiture and will generally become more skilful at it than the photographer who allows his interest to be distracted to other fields.

3. Commercial work should not be attempted unless the photographer has the equipment and necessary knowledge to do it right. A commercial job poorly done is a boomerang. Indirectly it will undermine the reputation of the studio for good portraiture. The future portrait prospect who sees the poor commercial job at once infers that the quality of portraiture done by the studio is equally unreliable.

4. Some kinds of commercial work can be taken as a sideline better than others, particularly work which can be done in the studio, such as copying, enlarging, and photographing samples for manufacturers, advertisers and the like. Some special equipment may have to be installed, perhaps a special workroom, but the work itself can be sandwiched in to even out the peaks and valleys of the regular trade without inconveniencing patrons who may come in for sittings. In this connection it may be added that every well-equipped studio, according to photographers of wide experience who have been asked their candid opinions, should be equipped with good enlarging apparatus.

5. People who patronize the city studio for portraiture are sometimes prejudiced unfavorably by the mixing in of commercial work, if it is made noticeable to them. If commercial work is handled by the portrait photographer, it is therefore advisable to keep samples off the walls or in a separate room. It has been found best to make the same distinction in advertising, confining the general advertising to portraiture and getting the commercial business by more direct methods—by letter, printed folders, or personal solicitation.

6. Commercial work if efficiently handled, may be made the means of increasing the photographer's portrait business, as it brings him into close touch with the business men of the community, who are often the hardest class of people to get into the studio for a sitting. As Mr. Business Man goes through the reception-room to the "commercial department" he naturally pauses to look over the samples of portraiture hung upon the walls, and is impressed, so that the photographer who is anything of a salesman can frequently sell him on a personal sitting before he gets out of the studio. This is the old idea of approaching your prospect indirectly and getting him into a situation where taking action involves no inconvenience and no effort on his part.

7. Certain kinds of commercial work are much more expensive to handle than are others, and unless costs are carefully estimated the work may be done at a loss without the photographer's being aware of the fact.

8. No business advantage is to be gained by being a dog in the manger. A customer will be favorably impressed rather than unfavorably if the photographer tells him plainly that a certain kind of job, to be done right at a reasonable price, requires facilities with which he is not provided. Whether it is advisable to take such work and farm it out is a question for the individual to decide, but most photographers do not wish to be bothered to this extent, as the commission it is possible to charge is small, while they must also be answerable for the quality of the work although not done by them.

9. Portrait photographers who have a periodic itch for outdoor commercial work as a sideline, feeling cramped by studio restrictions, should consider that what they need may be not a change of work but a good vacation, or at least a larger allowance of time for exercise in the open air. They would also do well to consider home portraiture as a better sideline, since it will give them the change they desire without distracting from their specialized field. Home portraiture has done considerable to improve the quality of portraiture done in the studio, since it takes the photographer out of a rut and suggests new compositions and new lightings.

The foregoing points are not offered as a complete symposium on the subject, but if they are given due thought by the photographer with this old question of commercial work to settle they should help him to answer the question as will prove most profitable to himself.—*Portrait.*

### The Biggest Help

THE other day we were talking to a photographer of wide experience who from a very humble beginning, twenty years ago, has risen to a position at the top of the profession. After a conversation of an hour or more touching all phases of up-to-date studio operation, we asked him this question:

"If you were to select from all your experience one big idea for the too much neglected small-town photographer, what would it be?"

And this was the answer that came back:

"Tell him to learn retouching. That is the thing he needs more than anything else, and the thing he most neglects. Everyone who has been in the profession any length of time and knows the public knows that, except occasionally, it cannot be satisfied with pictures printed from unretouched negatives. Inability or indisposition to retouch is often the only thing that holds the small photographer back, and yet in how many cases you find that he will not take the trouble to learn. My advice to him would be to go away, if possible, and take a few lessons from an expert—anyone can learn—or, if he won't or can't do that, to get some handbooks on the subject and dig the thing out for himself. That is the way I picked it up myself at first, learning different dodges from other photographers as I got the chance."—*Portrait.*

### Results

THE old saying that there is no royal road to success applies to photography as to other things. Success comes to the photographer who plans



and works intelligently, holds himself to the course he has marked out, and faces the world with courage and a smile.

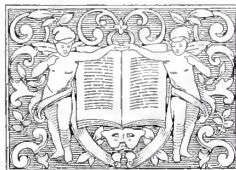
Brilliance of intellect and of artistic perception plays its part in the careers of some men who have won great reputation, but most of us belong to the class which can boast only average mental power—the class which accomplishes the highest average of results. The man who feels that he is lacking in certain attributes which seem to distinguish others of his craft does well to remember this, and to put with it the thought that interest in one's work and determination to improve on past achievement are fully as irresistible as genius.

Photography is an art of many phases, presenting opportunities varied enough to stimulate at many points, but the big rewards go not so much to the men who work by flashes of intuition as to the men who give their problems patient, careful study and master the technicalities of their craft by steady plugging.

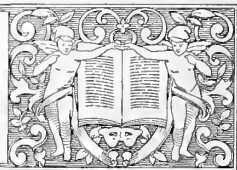
It is stated by those who have studied scientifically the ways of men, that the best of us is

only 3 or 4 per cent. efficient—that even those who achieve the greatest success do not begin to measure up to the native capacity that is in them. Lost motion, carelessness, wasted effort, indolence, distraction from the chief business of the day—all take their toll, and men remain inefficient at the business which they undertake, however productive they may appear to the casual eye. Thus the man who merely sets himself to strive with undivided effort toward the objects which he has in view can, with an equipment even lower than the average, achieve results that would be a credit to a higher type of brain.

Learn to make good pictures. Do not be satisfied with passable results. There may be only a few who can produce the work of genius, but good results—pictures that will be approved by discriminating critics and by customers that want the best—are well within your reach. Do not stop short when but half way to success. The power is within you; work on up to the height that you would reach. If you think you can do it, you can. Face the world with courage—and a smile.—*Portrait.*



## VIEWS AND REVIEWS



### The Business Situation

THE business situation, as we see it along the photographic lines and comparing photographic business with all others, brings out two things prominently:

First, the decline in the price of merchandise is not coming immediately, and when it does come it will be very gradual, just a little at a time. Even before this decline sets in, prices on many things will increase rather than diminish. The Wollensak Optical Company have just recently raised their prices of lenses. Why? Because of the increased cost of raw material and labor, two things that will always keep the prices going up as long as they advance. The increased cost of freight, express, etc., must also be added to the price of goods. The closest students of the situation, men who have spent years at it, believe that things will go higher in the photographic line before they go lower, with possibly a few exceptions.

Several months ago there was sort of a country-wide flurry in prices. Mr. Wanamaker, in Philadelphia and New York, put a 20 per cent. reduction on everything in his stock.

Neither the manufacturer, the wholesaler, nor the retailer is overstocked; all manufacturers

are way behind on their orders; the only time goods have declined in price is when the manufacturers had a large surplus stock they were compelled to move.

Everyone you talk to complains about the high prices of goods. They admit that wages are too high in every branch of business but their own; that prices are too high for all articles except those they manufacture or sell. The carpenter claims the plumber wants too much money per hour for his work, and the brick mason claims the carpenter is getting more than he earns. In fact, every man is looking out for himself and trying to down the other fellow. He is not receiving as much in wages as he should, the other man is receiving more.

The papers were full before the recent increase of how the switchmen employed on the railroads were underpaid. The writer was talking with several switchmen a few days ago, and they are making from \$300 to \$350 a month. It's a business, while it has some risks, that requires very little training, but still they are not satisfied.

Until the prices of labor are reduced, which will bring down the price of raw materials, high prices will continue, and we can see absolutely no change coming in the photographic lines for many months.—*Ohio Photo News.*



### The New England Convention

THE universal opinion was that the recent Springfield, Mass., meeting of the New England Association was easily the best held in some years. Taking his cue from the successful meeting at Milwaukee, Will Manahan, the president, had the floor of the convention hall laid out for the manufacturers so that the first impression gave one the right enthusiasm, making one involuntarily exclaim, "Gee, this looks like a real convention!" Then the program was patterned after the instructive features at the National, artificial light being given the right of way. The picture exhibit, too, was given a more decorative effect and some unusually splendid work was shown.

Three years ago the New England Association was in the dumps. It had little or no money in the treasury, its conventions were getting tiresome and uninteresting, and the New Englanders were fast getting out of the convention habit. Then Will Manahan stepped in, called in the manufacturers to his aid, gave the field a thorough "once over," spit on his hands, rolled up his sleeves, and started in. Today the New England Association has probably more money in its treasury than any other association, it has reawakened the interest of the New England photographers, and is once more coming into its own. The new president, A. K. Peterson, of Hartford, Conn., has everything in his favor, and as he is very popular and will have the support of the manufacturers the next New England convention should be like those of the palmy days of the association, when the attendance was never far short of being equal to that at the National meetings.—*Abels.*

### New Ansco Catalog

THE new Ansco catalog of amateur cameras, just received, makes the usual good impression of finely built instruments of precision. It is attractively printed in two colors, and its very readable pages should serve as an excellent guide to the judgment of the prospective camera buyer. The illustrations are plentiful, and depict both the cameras and distinctive features of construction and equipment. Several new refinements are to be noted. A valuable feature which makes the catalog good for reference is the set of depth of focus tables for lenses of 6½, 4½ and 3½ inches focus. Copies of the catalog can be had from dealers or from Ansco Company, Binghamton, N. Y.

### Advance Class in Art Photography Taught by Clarence H. White, of Columbia University

RECOGNIZING the broadening influence of artistic photography in portraiture, magazine illustration, and as a medium of art expression, the department has again secured the coöperation of Mr. White.

The course is designed for those who have had some experience in photography. It will deal broadly with the following subjects: The Application of Art to Photography; the Proper Use of the Camera; The Manipulation of Negatives and Printing Papers to Secure Pictorial

Results; Portraiture by Daylight and by Artificial Light; Working up Prints for Exhibitions, etc.

There will be fourteen sessions, seven in the studio rooms of the department on the first Thursday evening of each month, beginning October 9 and continuing until April 7, and seven Saturday afternoons of portrait work in Mr. White's school in New York.

Anyone interested in photography living near Brooklyn, will be well repaid by attending this special course. It is an unusual opportunity for all photographers.

The tuition fee for members of the Institute is \$10.00; for persons not members, \$14.00.

### Rochester Section Professional Photographers

THE Rochester Section of the Professional Photographers' Association of New York State held its monthly meeting October 4, at Grand View Beach, in conjunction with a banquet, followed by a corn roast given by John H. Heberger at his summer home by the lake. The association was well represented by members, out-of-town as well as local. Among those present were J. E. Mock, L. E. Allen, Irving Saunders, William M. Furlong, Louis D'Amanda, C. L. Goetz, William G. Whithall, Walter Nelson, S. W. Smith, C. J. Schlitzer, George C. Lodder, Fred Moser, B. J. Holcomb, Joseph N. Heberger, Bert J. Tibbals and W. C. Miller, of Brockport. The evening's entertainment was varied. J. E. Mock, president of the state association, outlined plans for the photographic convention to be held in Rochester next May.

### The Annual Pittsburgh Salon

THE Eighth Annual Pittsburgh Salon of Pictorial Photography will be held in the Department of Fine Arts of the Carnegie Institute, Pittsburgh, Pa., March 3 to 31, 1921, inclusive. Prints submitted will be passed upon by an impartial and competent committee of selection, and those prints possessing the highest merits in artistic expression and execution will be exhibited.

Entry forms containing full information and conditions of entry in the Salon may be obtained by addressing Charles K. Archer, Secretary, 1412 Carnegie Building, Pittsburgh, Pa. Last day of entry, Saturday, February 5, 1921.

### Monthly Discussions

THE Department of Photography of The Brooklyn Institute of Arts and Sciences, under the active management of Mr. William A. Alcock, the vice-president, has arranged a series of monthly discussions and criticisms, which are the outgrowth of experiments commenced last year. They resulted in such benefit and interest that they are to be made a feature this season; and they ought to serve as an example to other camera clubs throughout the country.

Each studio member is urged to submit some prints each month. The prints will be hung in the studio in the Department frames and *must be on white or light-toned mounts*, 14 inches x 18 inches or 18 inches x 22 inches. Unless so

mounted, prints will not be considered. At least one print submitted by each entrant will be hung. The selections will be made by the Mid-winter Exhibition Committee. There will be a meeting each month, devoted to constructive criticism of the prints hung, which prints need not necessarily be finished in final form, the object of these meetings being to help workers to prepare prints for the spring exhibition and for outside exhibitions.

The following is the schedule that has been prepared and the speakers on the subjects assigned, who will also help to criticize the work:

- October 18—Miscellaneous. R. M. Coit.
- November 15—Landscapes or night scenes. W. E. MacNaughton.
- December 20—Portrait or figure. Charles H. Davis.
- January 24—Architecture or still life. Charles I. Berg.
- February 28—Winter or sea views. Floyd Vail, F.R.P.S.
- March 28—Genre or groups. Announced later.

As a result in a great measure of last year's activities along these lines six members of the Department were represented at the London Salon of Photography this year and eleven at the Royal Photographic Society.

#### American Prints at the Royal Society

IN 1918 only two photographers from the United States showed their prints at the exhibition of The Royal Photographic Society of Great Britain, in the pictorial section. Last year there were but five. This year the work of forty-five was accepted and such a number contributed that, owing to lack of space, it was impossible to hang many pictures that would otherwise have been shown.

The American work was so meritorious, the Society decided to display all of it, whether hung at the exhibition or not, in a special show to be given during the latter part of January and the earlier part of February, to enable British photographers to see and study the American exhibits in their entirety, and thus also showing the Society's admiration of the work and its appreciation of American contributions.

It is expected that next year the Society will be able to obtain larger quarters for its exhibition, which they have been unable to do during and since the war.

#### Lubschez Photographs

AN exhibition of photographs was held at the City Club, New York, from October 4 to 25, consisting of thirty-eight prints, the work of Ben T. Lubschez, of New York. They were bromide enlargements, 11 x 14, and very tastefully mounted. The collection comprised landscapes, marines and architecture. The best were "Long Beach," "Hermitage—Nashville, Tenn.," "Reflections," "Toward Times Square,"

"Broadway Canyon," "Long Island Sound," "The Street—Winter," "Potomac River," "Peaceful Waters," "San Gabriel Mission, California" and "Clouds over the River."

#### Acknowledgment

IN "The Workroom" of the September JOURNAL, page 363, we published an article on "Photographing Cut Flowers." This article was reprinted from *Kodakery*, and the omission to give full credit was an oversight.

#### Interview with Mr. Eastman

It is seldom that Mr. Geo. Eastman, of the Eastman Kodak Co., speaks for publication, and any expression from him therefore is listened to with more than common interest. In *System* for October is a lengthy interview with Mr. Eastman, which gives us an insight into his long career in organizing and building up the wonderful and useful company which bears his name. This article will be of special interest to all our readers.

#### Pittsburgh Section Professional Photographers

A DELIGHTFUL meeting was held by Pittsburgh Section, No. 2, Professional Photographers, at the Della B. Hayes Studio, Butler, Pa., on the afternoon and evening of September 28. A special car was chartered from Pittsburgh to Butler and about thirty-eight persons attended.

The afternoon was spent socially, refreshments being served by Miss Hayes. The business meeting was unusually interesting, Mr. Diehl making an excellent talk on the Better Business Convention at Milwaukee and emphasizing the worth of coöperative advertising.

Dinner was served in the evening at the Y. W. C. A., after which the special car returned to Pittsburgh.

THOMAS M. JARRETT,  
Secretary.

*To Coat Drawing-paper* for sensitizing use arrowroot. Take 90 grains of Bermuda arrowroot and 7 ounces of water. Rub the arrowroot to a cream with a little of the water, then add the rest boiling hot, stirring until the solution is clear. If it does not clear, cook it two or three minutes; When cold add ammonium chloride, 60 grains. sodium carbonate, 100 grains; citric acid, 30 grains; water, 2½ ounces. Heat the mixture and filter. While it is still warm immerse the paper in the solution, drain it and let it get nearly dry, then dip again and dry. The coating makes a foundation for any sort of sensitizing solution.

WHEN you are doing a lot of business advertise to get some more. When you are doing no business advertise more to get some.

EVERYONE in your district doesn't see your show-case.



# *The* WORKROOM

**C**ONTAINING THE LATEST PROCESSES, FORMULAE  
AND APPLIANCES NEEDFUL IN THE ART OF  
PHOTOGRAPHY FOR THE OPERATOR & WORKER

The Reconstruction of Negatives and Prints  
The Perfect Developer  
Silver Intensification  
Making Solutions  
Defects in Negatives  
Variations in Hypo-alum Toning  
Facts and Figures from a Note Book  
Making the Best of Surplus Stale Dry-plates  
Enlarging Methods  
Toning Gaslight Prints with Uranium and Sulphur  
Telephoto Lenses for Professional Work  
The Hand-Camera in Professional Photography  
Dry Collodion Emulsion  
Photographic Materials and Processes





# THE WORKROOM

*By the Head Operator*



## The Reconstruction of Negatives and Prints

THERE are two chemical methods of altering the scale of gradation in a print in the initial stage of reconstructing the negative, *i. e.*, by manipulating the exposure and by altering the composition of the developer; and as any variation from the normal process in either method has a direct and palpable effect, I beg my inexperienced readers to consider the following remarks and advice upon the subject very carefully.

If the same end can be attained by altering the composition of the developer, adopt that method in preference to varying the exposure. If you vary the exposure you at once do away with an important constant, and any faults due to such procedure cannot be effectually rectified by development.

Before you have gained some experience in the work, do not attempt to make a compound variation in exposure and development.

Never employ "time development" if you have altered one of your constants; the negative must be developed slowly and examined from time to time. Remember that the initial effect due to any alteration in the composition of the developer will be the greatest. Now, different developers have very different effects in this part of the work, and it is an absolute necessity to know the peculiarities of the one in use. As to the best one to use, I am not prepared to say, opinions are bound to differ on the question, with more or less reason; but I will maintain that where the four essential features of cleanliness in working, colorlessness of deposit, constancy for similar formula, and simplicity in modification are required, you cannot do better than employ either of those given.

I give here a formula for a single solution, of metol-hydroquinone, the modifications of which are very similar to rodinal in their effect, except that the developer is more energetic in its action. The beginner must on no account get confused or worried at the thought of modifying or altering the composition of his developer. I have repeatedly found a prevalence of this peculiarity in young workers, and regret that many writers have given very great cause for its existence by splitting hairs over the effect of slight variations in the percentage of the caustic alkalies and carbonates and other ingredients contained in the composition of some developers. In the two formulæ given no difficulty will be experienced in this direction, as one of the great advantages in their employment lies in the fact that the modifications consist only of the addition or exclusion of bromide of potassium and dilution with water.

Ten per cent. bromide to be added when necessary at time of development.

The keeping quality of the above is practically

indefinite, so may be made up in the quantity given.

Bromide of potassium has been purposely omitted from the formula, as its effect can be more easily controlled when added, in known quantity of a 10 per cent. solution, from a dropping bottle.

### METOL HYDROQUINONE

Metol . . . . .	200 gr.
Hydroquinone . . . . .	120 gr.
Sodium sulphite . . . . .	6 oz.
Potassium carbonate . . . . .	3 oz.
Water (distilled or filtered boiled) . . . . .	80 oz.

The general effects to be obtained by the various methods of altering the original scale of gradation in the copy are as follows:

CASE I.—*Copy too flat or soft, too full of detail and lack of mass.*

Curtailling exposure with normal development will harden the result generally by loss of detail and lighting in the shadows. By the initial addition of bromide to developer the high-lights are still further kept back, providing development is stopped before it has reached the extreme limit, thereby increasing contrast still more. By diluting developer and omitting bromide the contrast in the original may be nearly preserved, detail only being lost.

*Exposure normal or correct.* By the initial addition of bromide to normal developer the contrast is increased universally, providing development is stopped before it has reached its extreme limit.

By diluting normal developer, and adding bromide, a thinner negative is obtained, but with almost precisely the same ratio of contrast as above. Such a negative is suitable for enlarging purposes.

*Note.* In order that my readers may clearly understand what is meant by the limit of development, it must be remembered that development is complete when no further reduction of the light-affected bromide of silver in the emulsion can be effected by ordinary development; beyond this point, any further apparent reduction is simply chemical fog or decomposition, due to prolonged immersion in a comparatively strong solution of developer. It should also be remembered that if a developing solution of however large a volume be sufficiently weak in the percentage of the reducing or developing agent, immersion of the negative for twenty-four hours or more will in all probability completely develop it without any tendency to decomposition. Such a solution is generally known as a "stand developer." This proceeding, however, is not permissible with all developers.

**CASE II.—Copy is too hard or full of contrast.**

By increasing exposure and using normal developer the steepness of the scale of gradation is lowered, and the whole softened by reducing the contrast between the high-lights and shadows.

**Exposure Normal.** By diluting normal developer a thinner negative is obtained with practically the same contrast, providing development be stopped before the limit. By using a normal developer and omitting bromide a softer result is obtained.

By diluting normal developer and omitting bromide a much softer and thinner negative is obtained.

There is another method, which, I believe, is not generally known, by which contrast in the copy may be reduced, and which lends itself to a considerable possibility of local treatment: If a piece of card, with a dead-white surface, be frequently passed in front of the copy during exposure, a general softening is the result; but it must be remembered that the card must not be passed backward and forward, or the middle of the copy will receive less exposure than the rest, unless the card clears it each time. Do not attempt to obtain a reverse rendering by using a black card; it has not the desired effect.

The worker must always bear in mind the printing process he is going to employ, and develop to produce the degree of density most suitable to that process. Should he afterward decide to print by a different process, the negative may often be accommodated to it by the interposition of pale yellow glass for increasing contrast and pale blue glass for reducing contrast.

The possibility of reconstructing a negative is in itself worth all the time spent on mastering the process. A method of reconstructing a negative in which there has been a movement of the subject—a sitter in a portrait for instance—may be often employed with advantage and success; it is as follows:

The negative is bleached in mercury, and, as in nine cases out of ten, one position has received much more exposure than the other, this will consequently give the stronger positive image. The film is now backed with black velvet, or similar medium, and the positive image copied through the glass; by this means we obtain another negative the correct way round; that is to say, that when printed from in the ordinary way the prints will show the subject in the same position as if printed from the original negative. Professional photographers should remember this if they do not already know it.

### The Perfect Developer

EVERY photographer discovers the "perfect developer" at some period in his career—a developer which will do more than anything else to correct errors in exposure, and bring out all the qualities needed for the ideal print. Each new discovery of the chemist, providing it is properly advertised, has its period of enthusiastic popularity. "Have you tried it?" says the latest convert to his friends. "I can assure you it is wonderful. I never got such negatives before. Really, all the results on my last holidays are marvellous." Then after a time comes

reaction. Somehow, on another journey, the plates developed with the perfect developer leave much to be desired, while those taken by a companion on the same trip were excellent. Gradually it is forced upon the enthusiast that the developer was not at fault, and that his "perfect developer" was only perfect when the correct exposure had been given. We all go through this experience, and one so necessary to us if we are to realize that the perfect developer is the one which we understand the best.

In our case the perfect developer for negative making is "Pyro." We have had our youthful enthusiasms for the "ens" and "ones" and "ols," and return to the oldest of them, "pyrogallol." Despite the valuable discoveries of the photographic chemist, we imagine "pyro" is as secure in its position as ever it was, and probably larger quantities are used today than ever before, although we quite appreciate the advantages of some of its newer rivals for special purposes. And the causes for the popularity of "pyro" with the majority of the best workers are its cheapness, its admirable keeping qualities both in crystal and in solution, and its suitability for making concentrated solutions, of which only a few drops are required for developing a plate. Regarding its cheapness, price is a small matter, and does not stand in the way when perfection of result is desired. Fortunately, with pyrogallic acid, cheapness is not secured at the expense of quality, for the crystallized "pyro," which is sold in small bottles, is in our opinion, not only cheaper but better than the old style in beautiful snow-flake form. The crystals not only economize space, but seem to make clearer solutions, probably because they keep better. Then the immense advantage of "pyro" so far as concentration of solutions is concerned is at once manifest. From 2 to 4 grains of "pyro" are sufficient to develop a quarter-plate and 1 ounce (437½ grains) quickly made up into solution will last most amateurs a considerable time. The formula we recommend for all-round work is as follows:

#### No. 1 Stock Solution

(label "Pyro 10 per cent.")

Pyrogallic acid . . . . .	1 oz.
Potass. metabisulphite . . . . .	1 oz.
Water to . . . . .	10 oz.

#### No. 2 Solution

(label "Soda 20 per cent.")

Soda carbonate . . . . .	4 oz.
Soda sulphite . . . . .	4 oz.
Water to . . . . .	20 oz.

A simple plan is to get 10-ounce and 20-ounce bottles, and use them for the purpose of the developer. The quantities given are not quite correct scientifically, but they are practically, which is the main thing. An extra bottle may be had containing:

Potassium bromide . . . . .	1 oz.
Water to . . . . .	10 oz.

but bromide is rarely necessary with good plates.

To develop, we usually take 1½ ounces of water, add from 40 to 80 minims of 10 per cent. "pyro"



solution, and make up to 2 ounces with 20 per cent. soda solution. We say from 40 to 80 minims of "pyro" solution because some plates will not require more than 40, while others will usually want 80 if a strong and brilliant negative is required. Temperature is important, so far as time of development is concerned, and a temperature of about 65° F. is advisable. In very hot weather, or with plates prone to fog, from 10 to 20 minims of bromide, 10 per cent. may be added to the 2 ounces of mixed developer. The time of development must, to a great extent, be left to the worker, and is "according to taste." In such a developer as we have described for bromide printing or enlarging, three to four minutes would be ample, but denser negatives made for platino-type printing should have about eight minutes.

### Silver Intensification

THE ideal method of strengthening a developed silver image would seem to be by the deposition of metallic silver upon it from a solution of silver salt, much in the same way as a wet negative on a wet collodion plate is intensified. As many of us know, the silver intensification of a wet plate is about as perfect a process as any we have in photographic chemistry; but since the introduction of gelatin as the vehicle in place of collodion, silver has not been much employed as an intensifier.

I do not intend to enter into the various methods of intensification that have been advocated since the early days of the gelatin dry plate. There have been very many, most of them containing mercury in some form or other, and of the vast multitude probably the best and most scientific is that one advocated by Mr. Chapman Jones, in which, after bleaching with mercury, the plate is darkened in a ferrous oxalate developer. It is my province this evening to deal with the building up of the image by the deposition of silver upon it, the method being that given in my original formula, containing sulphocyanide and hypo.

One of the most admirable qualities of this method is that it retains the same ratio of gradation which existed in the original negative. In certain cases, where it is necessary to obtain very great contrast, it may be found useful to employ one of the other methods, though I hope, later on, to show that even with the silver intensifier it is possible to alter the ratio of gradation, when it seems necessary to do so.

Although the silver intensifier with sulphocyanide and hypo has been published for some twenty years, and has proved satisfactory in the hands of a few, for one reason or another it has never taken a strong footing among the many. There are one or two reasons for this. In the first place, it was found that the action of the sulphocyanide so softened the gelatin that with some plates it actually dissolved the film. Then again, staining took place so badly with it at times that when intensification was carried to an extreme limit, so intense was the dichroic fog produced that its red stain in the clear portions was even more intense than the deposited silver.

If these faults could not be remedied, so that

the process could be worked with certainty, it was of no value for everyday use.

It is a curious fact, that with some emulsions there is no trouble from staining. Whatever the reason, we know so little of the complications that occur between the organic developer, the silver, and the gelatin, that it would be futile on my part to discuss the theory of it.

I may say, however, that I have noticed that with some formulæ for emulsion making, used under certain conditions, green fog is liable to be produced if pyro and ammonia is employed for development; and that the same thing occurs with my silver intensifier, with pyro and ammonia or even if other alkalies are used in place of the ammonia. This points to the fact that there is some compound formed between the silver and gelatin.

Mr. Blake Smith two years ago published various formulæ for the clean working of silver intensification, as well as for getting rid of what he called "resin stain" of the developer. These methods were admirable in their way, from a chemical point of view, but the many manipulations required quite put it outside everyday use.

I felt so convinced that the sulphocyanide of silver intensifier was capable of good results that I determined to try to make it practically usable under all conditions; and I hope to prove to you this evening that I have done so. The whole secret lies in a nutshell. We must first attack the invisible compound of silver and gelatin which causes the stains. There are several reagents capable of doing this; copper chloride, potassium ferricyanide, acid bichromate being among the most successful I have tried, the latter being perhaps the most reliable of all, an immersion of the negative to be intensified for one minute in a very weak solution, followed by a two or three minutes' washing before it is placed in the silver solution, being quite sufficient to prevent all signs of staining.

The practical details are as follows: In the first place, it is very necessary to harden the film. A bath of formaline is, therefore, used, so that the plate will withstand the softening action of the sulphocyanide. A soaking in a bath of one part of formaline to ten parts of water, for five minutes, is sufficient. This bath may be kept as a stock solution, and used over and over again. After a few minutes' rinsing, the negative is placed in either of the following for exactly one minute, the bichromate being recommended by preference:

Potassium ferricyanide . . .	20 gr.
Potassium bromide . . .	20 gr.
Water . . . . .	20 oz.

or

Potassium bichromate . . .	1 gr.
Potassium bromide . . .	20 gr.
Hydrochloric acid . . .	60 min.
Water . . . . .	20 oz.

Too long an immersion in either of these baths causes the image to bleach, which we wish to avoid, if we desire to retain the original gradation. In the time prescribed, there is little apparent change; but the reducing agent has done its



work, and after a few minutes' rinsing the negative is ready for the intensifying solution.

The intensifier may be kept in the form of two stock solutions, which will keep good for years.

A	
Silver nitrate . . . . .	800 gr.
Water (distilled) up to . . . .	20 oz.

B	
Potassium sulphocyanide . . . .	1400 gr.
Sodium hyposulphite . . . . .	1400 gr.
Water up to . . . . .	20 oz.

Half an ounce of B is taken, and to it is added half an ounce of A, stirring vigorously with a glass rod. The result should be a clear solution; if the stirring is omitted it is liable to be turbid. To this is added 1 dram of a 10 per cent. solution of pyro preserved with sulphite, and 2 drams of 10 per cent. ammonia. The negative is laid in a chemically clean dish, and the silver solution poured over it. The deposition of the silver begins to take place in a minute or two, and the image gradually gains in strength. As soon as sufficient density is acquired, the negative is placed in an acid fixing-bath, until the slight pyro stain is removed, and is then well washed, as usual. It is well to rub the surface of the film with a tuft of absorbent cotton at some time during the washing, to remove a slight surface deposit which will be found upon it.

There is one thing upon which I must lay stress and that is that the negative to be intensified must have been thoroughly fixed in a clean, fresh, hypo bath, and not merely have been left for some indefinite period in a stale or dirty solution of hypo that has been used on other occasions. This is important, but is a point on which I am afraid a good many photographers are liable to be careless.

So far, the process, as described, does not alter the density ratios, merely increasing the vigor of the image proportionally right through. If, however, the original negative is flat from over-exposure, we may get greater contrast by carrying the intensification rather far, and then reducing with the ferricyanide and hypo reducer. Or we may allow the negative to remain in the clearing bath for a considerably longer time, until a decided bleaching action is visible. This bleached image is partially soluble in the silver solution, and so a portion will be dissolved, while the alkaline pyro will reduce the remainder. This treatment is on the whole not really satisfactory; so that I prefer to treat the intensified image, which by the way, should be a trifle overdone, with the Howard Farmer reducer, as just described.

In a similar way we have it in our power to make a hard negative flatter or softer, by employing ammonium persulphate, this salt (in contradistinction to the ferricyanide) attacking the denser deposit first.

I need not point out the obvious advantage of being able to watch the growth in the density of the image, and to be able to stop it at the desired moment, which we have in this method. Moreover, the result is permanent.

It is not an everyday occurrence that a negative requires strengthening, but when the neces-

sity does occur in the stock solutions at hand, it is only the matter of a very few minutes to remedy it, and the work may be done on the lines I have indicated, with the certainty that the solutions used have not deteriorated, and that the work can be done without any risk of a hitch, or of failure from staining, or from any cause whatever.

### Making Solutions

SOME of the operations that many of us perform almost instinctively prove troublesome to those who do not know how to set about them. The novice may know that he requires a solution containing a certain amount of the solid in a definite bulk, and may know exactly what these quantities are, but his difficulty is to dissolve the quantity of solid so that the final solution shall be of the required bulk. A method that serves well in one case may prove very awkward in another. The simplest method is to measure into the bottle that is to contain the solution the exact amount of water that the quantity of the solution is to occupy. Ordinary Winchester quarts, for example, hold rather more than 80 ounces, or 4 pints; or, for those who use the metric system, two liters is a convenient bulk of solution to prepare in such a bottle. For smaller quantities a quart, pint, liter, etc., smaller bottle will be chosen, but each will have marked on it by a label, a scratch with a diamond, or a line made with a small brush dipped into Brunswick black, the position of the top of the liquid when the required quantity has been put into it.

To prepare, for example, a plain solution of hypo containing 4 ounces to the pint, 4 ounces of the solid are put into the bottle marked at 1 pint, or 16 ounces into the four-pint bottle; water is added until it comes nearly up to the mark, and the bottle is shaken until the whole of the solid has dissolved. Or a shake may be given now and then as convenient, until the solution is complete. Water is then added to bring the bulk exactly up to the mark, a final shake is given, and the required solution is obtained.

If the weight of the solid is to be dissolved in the given bulk of water, the water is measured first, the solid substance is added, and the mixture is shaken until the solution is complete. If the solid substance is contained in a sealed tube, such as the gold and platinum salts are often sold in, the water may be measured first, and the tube, after carefully cleaning it outside, may be cut open and dropped bodily into the water. The bulk of the solid salt in such cases is so small as to be negligible.

If it is found that this method is too slow it may be quickened in various ways. The solid may be ground more finely (in a mortar) before it is put into the bottle. This applies especially to such substances as hypo, crystallized sodium carbonate, sodium sulphite, etc.

To hasten the solution the water may be warmed. If it is desired to warm it to a higher temperature than the back of the hand can bear, it would not be safe to put the warm water into the bottle. A glass flask, such as is sold by chemical apparatus dealers, should then be used, and it should be heated over either a Bunsen

gas-burner or a spirit-lamp. But this method is not advisable for those who have had no experience in the use of chemical apparatus; they should be content with the slower and quite sufficient method of shaking in the bottle with cold or slightly warmed water.

Saturated solutions being those that contain as much of the solid as the water will take up, the shaking method is tedious, even if the substance is finely ground. The unground crystals should be tied up in a piece of muslin, the string tied to the middle of a pinstick, meat skewer, or something of the kind, and the stick placed across the mouth of a wide-necked bottle or suitable jar, so that the substance to be dissolved hangs in the upper part of the water. Solution will then go on automatically until either the solid is all dissolved or the water has dissolved as much of it as it can. The solution as produced sinks in the water, and the circulation is thus kept up to the end without attention.

The solutions of those substances that are dissolved in small proportions, as for toning baths, may be prepared by the simple shaking method, but if the crystals are rather large, such as sodium acetate, they may be crushed first. Potassium bromide, ammonium bromide, sodium carbonate, potassium carbonate, as generally used for development, or for 10 per cent. solutions, and caustic soda for any strength of solution, may be dissolved by simply shaking them up in a bottle as described. Saturated solutions of potassium oxalate (for platinum printing), mercuric chloride, alum, etc., are best prepared by the muslin-bag method. To these may be added solutions of hypo for fixing, though the simple shaking method is not very tedious in this case. A solution of crystallized sodium sulphite of 50 per cent. strength can only be prepared conveniently by heating the water in a glass flask, but a 25 per cent. of weaker solution may be prepared by either of the other methods.

It is desirable to filter all solutions before use, unless they can be allowed to stand long enough to become clear.

Iron sulphate, ammonium carbonate, and potassium metabisulphite should each be dissolved in cold water.

Solutions containing pyrogallol, amidol, and other active developing agents should not be filtered. The preservative, metabisulphite or sodium sulphite, and the acid, if any, should be dissolved before the pyro.

Distilled water should always be employed in making up solutions that are to be kept any length of time.

Potassium ferricyanide can be kept in solution, but it is better not to do so.

Solutions of the caustic alkalies, and of sodium or potassium carbonate, are better kept in corked than in stoppered bottles. They have a great tendency to make stoppers stick.

### Defects in Negatives

A PERFECT negative presupposes a perfect plate, correct exposure, and correct development stopped at exactly the right time. It is almost unnecessary to say that all these conditions are

rarely satisfied, and consequently most negatives fall more or less short of perfection. The defects may be broadly grouped under two heads, namely, those due to imperfections existing in the film before exposure, and those due to defects or errors in the way in which the plate has been treated. It will be more convenient to deal with the latter, and larger, group first, but there is really no hard and fast division between them.

*The negative is thin,* or in other words, while showing good gradation, and sufficient relative contrast between the different parts, is as a whole lacking in opacity or printing strength, and gives prints that are deficient in vigor and contrasts. The plate has been removed from the developer too soon, and the remedy is to intensify the image. Sometimes the want of opacity is due to the fact that the developer was too cold.

*The negative is too dense or opaque* and consequently, although showing good contrasts and gradations, takes a long time to print, especially on dull days. The developer has been too energetic, or development has been continued too long; the remedy is to reduce the image.

*The image is "flat,"* or shows comparatively little contrast between the highest lights and the deepest shadows. This may, of course, be due to the absence of contrasts in the subject photographed; it is commonly due to overexposure; it may be caused by using a developer containing too little reducer, or restrainer, or both, and too much alkali; sometimes it arises from a defect in the quality of the emulsion, or from the fact that the plate has been coated with an abnormally thin film of emulsion.

*The image is "hard,"* or shows excessive contrasts between lights and shadows, and is defective in the range of its half-tones. This is probably due to underexposure, but may have been aggravated by the use of a developer containing too much bromide or too little alkali. Local reduction may partially remedy the defect.

*Fog.* A more or less marked gray deposit of reduced silver extends over the whole surface of the image. It may be due to overexposure, in which case the edges of the plate that have been protected by the rebate of the dark slide usually remain clear. It may also be caused by using a developer containing too much alkali, or too little restrainer, or both, or by the plate having been exposed to actinic light outside the camera, including the light from the dark-room lamp if the glass or colored fabric used as the screening material is not efficient. In any of these cases the defect would be observable up to the extreme edges of the film.

The character of the dark-room light should be tested by exposing one-half of a plate to it at a distance of say nine or twelve inches for five or ten minutes, the other half of the plate being protected by some opaque substance. The best plan is to put the plate into a dark slide and draw out the shutter half-way. After exposure the plate is treated with a developer in the usual manner, and it can then be seen whether or no the light has exerted any action on the plate.

Slight general fog may, as a rule, be neglected, but if the amount of fog is at all considerable the plate should be treated with a reducer, and afterward the image can, if necessary, be intensified.



*Green Fog.* The surface of the film shows a peculiar brilliant green or yellowish-green lustrous appearance, generally in patches, when examined by reflected light, but is more or less distinctly pink when the plate is looked through. This effect is rarely observed except when pyro-ammonia has been used as the developer, and it most frequently occurs with old plates, especially if development has been long continued or has been forced by the addition of comparatively large quantities of ammonia.

If the green fog is only slight it does not affect the prints made from the negative, but in bad cases the prints have a patchy appearance and are less deeply printed at those points where the green fog is worst.

Two methods are available for the removal of green fog:

In one of these the plate, after being fixed and washed, is placed in a hypo solution of half the strength of the ordinary fixing-bath, and to this hypo solution is added a very small quantity of a solution of potassium ferricyanide, and the mixture is allowed to act on the plate for some time, the dish being rocked occasionally. The green fog will gradually disappear, and some more of the ferricyanide may be added, if necessary, to secure this end; but it is important to keep the proportion of ferricyanide as low as possible, otherwise the image itself will be reduced. For this reason, if it is seen or suspected that the green fog is likely to be bad, development should be carried a little farther than usual in order to allow for the slight reduction that accompanies the removal of the green fog.

The other plan is to immerse the plate in a dilute solution of ferric chloride (perchloride of iron) until the green fog has been completely bleached, then wash, first in a dilute solution of oxalic acid and afterward in water, and finally treat with a developer, preferably ferrous oxalate. The green fog is converted into a very fine gray deposit which is almost invisible and has no appreciable effect on the printing qualities of the negative.

*Black spots* may be due to particles of dirt that have been allowed to lodge on the film during one or other of the operations, or during drying. They may also be due to particles in the emulsion, and in the latter case are generally round and sharply defined.

*Black marks* of the nature of irregular streaks, looking, so to speak, like black scratches, are generally due to mechanical abrasion of the film. Pressure produces a developable image similar to that produced by the action of light.

*Transparent bands*, or bands showing less opacity than the rest of the image, are sometimes caused by exhalations from the material forming the hinges of the dark slides.

*Transparent spots* if small ("pinholes"), are generally due to the presence of particles of dust on the surface of the plate when it was exposed. Prevention lies, of course, in carefully dusting the plate and the dark slide with a soft, clean, dry camel's-hair brush, before putting the former into the latter. If the spots are larger and circular, they are due either to the formation of air-bubbles on the surface of the plate during

development, or to the presence in the film of insensitive particles.

*Uneven opacity or density*, varying gradually from one end or side of the plate to the opposite end or side, is due to uneven coating of the plate. If there is a distinctly defined patch, less opaque than the rest, the plate was not properly covered by the developing solution.

*Stains.* A uniform stain, of a yellowish or brown color, is produced when the pyro developer contains too small a proportion of sulphite or is allowed to act for a very long time. Such a stain is rarely observed with the other developers mentioned above. The pyro stain can be more or less completely removed by immersing the plate for some time, with repeated rocking, in the alum solution given above, 1 dram of sulphuric acid being added to every 10 ounces. The plate must afterward be well washed in soft water. Similar stains in patches may be caused by using dirty dishes or a developer that has become turbid by being frequently used.

*Deep yellow-orange or brown stains*, appearing gradually in patches or all over the negative, some time after it has been fixed and washed and dried, are due either to imperfect fixing or to incomplete washing after fixing. There is no practicable remedy.

*Halation.* When the subject photographed includes some part much more brightly lighted than the rest, such as a window in an anterior subject, the details of the bright part are not only lost, but the image of it seems to spread in all directions, obliterating the details of the surrounding portions. The effect is especially noticeable when the subject includes dark parts which necessitate a somewhat long exposure. A window at the end of a long, dimly lighted interior, or dark trees against a bright sky, are cases in point. The effect is really due to the fact that the sensitive film is not perfectly opaque, and some of the incident light passes through the film and is reflected from the back surface of the glass on to the under side of the film, producing a blurred image superposed, as it were, on the normal image formed at the surface of the film by the action of the direct light. The effect is known as "halation." It is prevented by having a perfectly opaque film, which is a condition difficult to realize in practice, and which, moreover, introduces certain other disadvantages. It is also prevented by coating the back of the plate with some substance that will absorb the rays that have passed through the film, and so prevent their being reflected back against the under side of the film. The substance used must either be opaque or must have a deep orange, brown or red color, and it must have the same refractive index as the glass, otherwise the reflection will not be prevented. For practical convenience it must also be easily applied and easily removed. Many substances have been recommended but nothing is so good as caramel, prepared by the action of heat on sugar. In order to get the mixture to dry completely after it has been applied, a somewhat troublesome process of purification is necessary, but caramel specially prepared for the purpose can now be obtained from dealers in photographic materials. The caramel (which is



a solid substance) is dissolved in just enough water to make a thick syrup, which is carefully applied to the back of the plates in a thin layer by means of a flat brush.

If the caramel does not dry properly the solution may be thoroughly mixed with about one-quarter (or more) of its weight of very finely powdered burnt sienna or burnt umber, "ground in water."

After being coated, the plates require some time to dry, and must of course, be carefully protected from light. If the dark-room is thoroughly dark, the plates may be put up to dry in the same manner as negatives, but if the dark-room is not suitable, some sort of drying box must be used.

After exposure and before development the backing is removed with a damp sponge; if caramel only is used in a form completely soluble in water, it need not be removed unless a developer is being used that is to be applied to several plates in succession.

### Variations in Hypo-alum Toning

It should be understood that, in discussing the manipulation of developing-out papers and their subsequent toning, I have reference only to the professional or portrait grades used in the making of portraiture. The extreme variations of latitude and developing speeds of the more contrasty papers mostly used for purposes other than that of making portraits would prevent one who did not use them continually from arriving at definite conclusions as to their proper manipulation for sepia of a predetermined tone.

The popularity of sepia tones for portraits seems unquestioned. The warmth and richness of tone in well-made sepia photographs seem undoubtedly to be the cause of their almost universal popularity. If, then, the desirability of sepia tones is acknowledged, their production should be facilitated, especially among those who have not been getting satisfactory results; and this can easily be done, providing the explanation of a satisfactory working method be obtained. I make no attempt to pose as an authority upon the exact chemical reactions of various formulæ, but can definitely state that, with each variation from what may be considered a standard formula, a certain difference of tone will result in prints which were exposed and developed identically alike. This knowledge should, as we progress, be considered as the basis for control of tone. There are undoubtedly difficulties in their making over that of a black and white print, as witness the fact that a satisfactory black and white print will not always tone to a good sepia; but that should prove to be no hindrance, if the underlying causes are but understood.

I have seen photographs that were of a pronounced purple tone, others ranging in tones through the different shades of brown until they approached the very undesirable yellow; yet they were called sepia photographs. This, of course, absolutely conflicts with the dictionary definition of sepia, and actually is only the attaching of a fixed title to whatever result is haphazardly produced. Unless one decides in advance what color is really to be obtained and

knows how to obtain it, I do not see a possibility of any but an accidental result.

Another grievous fault found in the work of many seems to be a lack of detail and a bleached appearance in the high-lights, due to insufficient length of development brought about, no doubt, by a desire to avoid a cold or purple tone, which would ordinarily be obtained by too long development. The experienced printer should know that, in the development of all portrait papers of quality, the exposure should be so judged that, when being developed, the image will leisurely proceed to a point where it seems to hesitate. From then on, for perhaps the following thirty seconds, it will be found to take on an added richness in general tone without appreciable darkening, and that the little points of high-lights will then show visible detail, giving a sparkle to the print as a whole, which is lacked previously. Until then development is not completed, and my purpose is to show that, from such a print only, can the best finished result be made.

The proper length of development in a normally balanced developing solution should be not less than sixty seconds and not more than one hundred and twenty seconds for papers of various speeds.

I shall divide developing papers into two classes: one, such as Professional Cyko, having a natural tendency for giving prints of a blue black tone, as against Artura Iris, which produces normally more of an olive tone with equal amounts of bromide used. When using any portrait paper which produces ordinarily the former tone, an increase of potassium bromide over a normal amount is advisable; even double the quantity will not be found excessive.

When using the papers which naturally produce the more olive tones, any excess of bromide would be detrimental, in that it would increase the tendency of the resulting sepia to being yellow in tone. It will be found best to work with one kind or the other, according to one's preference, at any one time, as they are toned in hypo alum baths of different composition.

For purposes of experimentation, let us make six prints from one negative; first, three prints from a paper such as Artura Iris, Haloid Imperia, or other olive-toned papers, using a minimum amount of bromide, developing as previously explained. Then three prints from a paper giving a cold black and white tone, such as Cyko, Artura Aegis, or Haloid Cameo, as preferred, using a maximum amount of bromide. Take care that each print shall be as nearly identical as possible on like papers. After these are fixed it is advisable to wash just long enough to rinse away any acid remaining in the print from the fixing-bath, when they are ready to tone. The use of too strong a hypo bath for fixing the prints should be avoided. One that will test about 60 per cent. by hydrometer is about correct, also having included in it the ordinary amount of acid hardener for prevention of blisters. A hypo bath stronger than this may have a tendency to cut or bleach the image to a certain extent, which would result in giving a very pale or weak-appearing sepia.

A normal toning bath should be made as fol-

lows, preferably some time previous, as it will be found to work better if having been given the opportunity to cool, then re-heating it for use:

One hundred ounces of water, in which dissolve 1 pound of hypo. Then add 4 ounces of powdered alum, and heat to the boiling point. As soon as it has boiled a few minutes, set it aside to cool. Dissolve in 1 ounce of water, 30 grains of nitrate of silver. Precipitate the silver with about 30 drops of pure ammonia, or, if more convenient, use 30 grains of common salt. Then add the contents to the alum bath after it has cooled.

To use the bath, heat it again to about 130° F. The bath should have a milky appearance, and should not be dark in color. If this should be so, the silver nitrate was not properly precipitated before adding it to the first solution.

For proof of ability to control tones as wanted, let us now tone two prints previously made as directed, using one each of the papers having different characteristics. Toning at 120° to 140° F. should be complete, in ten to fifteen minutes. Upon examination, the two sepias will be found unlike. The print which was the more olive originally will be the warmer brown, or of a more yellow tone.

For further experiments, divide the alum bath into two 50-ounce solutions. To one add 10 grains of silver nitrate and also 1 ounce of gold chloride solution, which is made as follows: Dissolve 45 grains of chloride of gold in 16 ounces of water to be used as a gold stock solution. To the other bath add 10 grains of iodide of potassium, dissolve in a very little water. In these two baths when heated, two each of the remaining prints should be toned. Then all six prints should be compared. No two prints will be found exactly alike in tone. The ones which were toned in the gold bath with an increased amount of silver, will be found to have a more chocolate or purple tone than the first two that were toned, although one should be more so than the other. The ones that were toned in the bath having iodide added should be a much warmer tone than any of the others, but one should be more of a yellow tone than the other.

By the addition of silver or gold to a bath when colder tones are wanted, and by the addition of potassium iodide to keep the tones as warm or light as wanted, it is possible to produce in your work your own conception of what sepias should be, not having to accept even if unsatisfactory, the tone which may happen to be produced. A tendency of the bath to give gradually colder tones from continual use will be noticed, which may be corrected by the addition of from 5 to 10 grains or iodide whenever needed. In addition, the knowledge may be made use of that, to a certain extent, a print may be so exposed as to render it necessary to slightly prolong development beyond a strictly normal length of time, being careful not to overdo it, which will give proportionately colder tones in any alum bath. By working in the opposite manner and so timing the exposure that development is complete at the expiration of the minimum time, the tones will be correspondingly warmer in any bath.

With this knowledge gained, and a decision

formed as to which particular print is preferred, it is only necessary to use the paper which gave that result in the particular alum bath which was used. A larger quantity of one bath may then be made for regular use by keeping the different chemicals proportionately the same. The bath will evaporate somewhat from continual heating. Renew the volume with additions from a separate solution of the same formula of hypo and alum only, using the gold, silver, or iodide as the means of controlling the tones. The papers answering the purpose best, perhaps, are the ones which give a rather undesirable cold black and white toned print; but, if used with enough bromide, and not forcing the development through under-timing of the print, will yield the most pleasing browns.

The use of either a buff or white color stock paper base is, of course, for individual preference to decide, but I do not feel that, for white draperies, or where the predominant tone of the clothes is white, a buff stock should be used. If a lady wears a white dress, I feel as though her taste should be respected, and that it is undoubtedly because she does not prefer a yellow one. On the other hand, for certain effects, a buff paper will often seem to add a certain richness to the whole effect which is very pleasing. The papers having a slight sheen or semi-sheen will be found to tone a more brilliant brown, and will remain nearly the same after being dried.

The matt or rough surface papers will normally tone to a less brilliant color, and will show a considerable dulling down in color after being dry. With experience, it will be perfectly possible to make allowance in your original print for this slight change of color, by making the matt surface prints a trifle lighter than those on semi-gloss papers.

I would also advise their being exposed so as to develop in the minimum time, using in the alum bath enough iodide to prevent the resulting browns from being too chocolate in color.

There seems to be a predominant impression that in order to make successful sepias, it becomes necessary to make a hard or rather contrasty negative. This, happily, is not a fact, as, were it so, it would then be necessary for the better workers purposely to make negatives of sharp gradations, minus the very qualities of remodelling which are essential to work of quality, for the secondary purpose of conforming to requirements considered necessary to produce a given style of work.

This idea no doubt originated from the fact that a certain amount of contrast has been found to give the richest appearing brown tones. The proper solution of this difficulty seems to be in so lighting the subject as to make the best possible negative, being careful to have the necessary contrast between your subject and background. By so doing it will be seen that the proper scale of gradations in the lighting is retained, and that no detail present in the highest points of light need be sacrificed. The use of too light a background for most sepia work will result in a pale brown color which will be very undesirable, and not at all pleasing.

The fact that sepias are not so easily made as a plain, untuned print, seems as though it



were an advantage as well as protection for those who wish to produce portraiture with a certain touch of individuality, which may not be so easily duplicated by others.

Continuously producing rich appearing sepia toned portraits of a uniform shade will surely attract the attention to you of that clientele for whom the more desirable work may be done, with its resultant sense of satisfaction and proportionately larger profit to you.

In concluding this very technical talk on mechanical manipulations, I wish to depart from my subject proper and say that, though all the different mechanical processes should be thoroughly mastered, they should be considered but incidental to the result being sought.

I feel that a purely mechanical photographic reproduction is just a photograph, and that it lacks the qualities necessary to its being termed a portrait.

It is possible to idealize each individual in one's own mind according to one's ability to do so, trying to avoid being impressed by the objectionable, subordinating those things in importance, being mentally quickly responsive to the pleasing characteristics of each person. I believe it possible then to visualize mentally a picture which can be reproduced photographically as a characteristic portrait of any individual, yet a thoroughly pleasing one as well. Many technical errors will be overlooked by the public, through their not being understood, if your portrait work has that quality of appealing to them through its being pleasing to the sight.

Whether it may be the play of light and shade, the animation of the eyes, the brightness of expression, or the balance of the composition, the constant striving for only that which is pleasing to you will lift your work above the purely mechanical into the class of those who make portraiture, not purely for mercenary gain, but because it offers opportunity for the expression of self in the form of idealism, to the end that others may also be helped to become more conscious of the fact that the beautiful is all about us, and needs but be looked for with receptive eyes.—*Camera Craft*.

### Facts and Figures from a Note Book

BEING an inveterate note maker, I find that I have collected a number of facts and figures relating to photography. They are much too disconnected to form an article, but I think they will be found of general interest in spite of this. I can claim no originality for them, but since they have been collected in a very wide reading of photographic books and papers, it is likely that some will be new to everyone. To the original publishers I tender my thanks, as every item has proved itself of value to me in some way. I have made no attempt to classify them:

To convert a percentage figure into ounces per pint divide by 5—*i. e.*, 25 per cent. solution is 5 oz. per pint. A 10 per cent. solution contains 44 grains per ounce or liquid.

The whitest white card obtainable reflects about 30 times as much light as the blackest black card.

To show up the grain on white wood, as in photographing furniture, rub over with benzine, 1 part; kerosene, 1 part. This will evaporate.

To make matt varnish, add tartaric acid to ordinary negative varnish to saturation.

When copying on an enlarged scale, the lens need only cover the original—*e. g.*, to copy a half-plate print to fill a whole plate a half-plate lens will suffice.

To fireproof calico for flash-lamp curtains, etc., soak in solution of tungstate of soda, or, less effective, common alum.

To fireproof muslin, use:

Boric acid . . . . .	5 parts.
Sal ammoniac . . . . .	15 parts.
Potass. feldspar . . . . .	5 parts.
Gelatin . . . . .	1½ parts.
Starch paste . . . . .	50 parts.
Water . . . . .	100 parts.

Apply to the dry muslin with a brush.

To remove bad stains from negatives, mix:

Bleaching powder . . . . .	1 oz.
Soda carbonate : . . . . .	1½ oz.
Water . . . . .	6 oz.

Allow to settle, and pour off clear liquid for use. Dilute to half strength. Use with care, as it will soften film. When acidified with oxalic acid this is even more powerful.

To revive stale plates, soak for ten minutes in:

Chromic acid . . . . .	30 gr.
Potass. bromide . . . . .	60 gr.
Water . . . . .	10 oz.

Wash well. When dry, plates will be clean, but slow.

To use stale bromide paper, make up:

Potass bromide . . . . .	10 per cent. solution.
Potass. cyanide . . . . .	10 per cent. solution.

Add 1 drop to each ounce of the developer used.

To make prints transparent, for window decoration, etc.:

Turps . . . . .	6 oz. to 8 oz.
Canada balsam . . . . .	1 oz.

Brush over the paper side of the print.

To destroy odor from stale fixing-baths:

Oil of cloves . . . . .	10 drops.
Petrol . . . . .	1 oz.

Add a few drops of this to fixing-bath.

Ammonium bromide may be used in place of potass. bromide in toning baths, but not in solutions where soda or potash is present. If it is so used, the solution will change; ammonia and soda or potass. bromide will be formed.



To make bromide prints flexible, for unmounted book illustrations, etc., soak in:

Glycerin . . . . .	5 oz.
Water . . . . .	25 oz.

and dry without blotting or heat.

To bore a rubber cork, moisten the borer in 10 per cent. solution of caustic soda or caustic potash.

To remove ink from negatives:

- Ordinary ink.—Dilute oxalic acid solution.  
Aniline ink (copying pencils, etc.).—Dilute hydrochloric acid solution.

A good general medium for coloring prints in dye or water-colors, or for spotting or Aerograph work, is:

Ox gall . . . . .	20 drops.
Methylated spirit . . . .	1 oz.
Water . . . . .	1 oz.

A solution for cementing film to glass is made as follows: Dissolve equal weights of gelatin and glacial acetic acid by warming and stirring. If this is too thick, use more acid.

Bromide paper may be used in an exposure meter if first soaked in either:

- Saturated solution of potass metabisulphite, or  
10 per cent. solution of potass nitrite.

Varnishes for film negatives:

1. Gum dammar . . . .	1 oz.
Benzole . . . . .	10 oz.
2. Borax . . . . .	$\frac{3}{4}$ oz.
Glycerin . . . . .	$\frac{3}{4}$ oz.
Shellac . . . . .	$1\frac{1}{4}$ oz.
Water . . . . .	20 oz.

Boil together for half an hour, add 5 ounces of methylated spirit, and filter.—ARTHUR G. WILLIS, in *B. J.*

### Making the Best of Surplus Stale Dry-plates

WITH reference to stale plates in general it may here be stated that plates keep best when packed face to face, a fact many workers may have already discovered. An odd plate in a once-opened box has been found to be badly fogged, while the pairs laid film to film in the same box have been found to be fairly clear of veiling and passably good.

As regards the experiments I have made with what may be termed normal or standard developers, I have no hesitation whatever in affirming that the most unsatisfactory results have been obtained with pyro in all its guises, metol or any developer containing it, *e. g.*, MQ, and all developers without either sodium or potassium bromide, the latter salt being the true salvation of deteriorated dry plates both old and middle-aged. The very best results were those developed with Kachin, a product not now obtainable, I believe. I happened to have a little by me and some years old, but the clear result it gave was surprising. When Kachin disappeared it was rumored that it was simply pyrocatechin, and that admirers of the developer could still use it,

but pyrocatechin, too, I believe, has disappeared for the time being. Kachin and pyrocatechin behave very much alike, and the factor numbers are the same, namely, 10. Glycin gave fairly good negatives, as also did plain hydroquinone and a mixture of the two.

Hydroquinone and glycin formulæ are well known, but care must be taken to employ those containing bromide and to increase the latter by about 50 per cent. As a combined glycin-hydroquinone formula may not be so well known, I may give the one I have used with success for stale plates. It is a two-solution form, namely, No. 1: Glycin, 90 gr.; hydroquinone, 30 gr.; potassium carbonate, 90 gr.; soda sulphite crystals,  $\frac{3}{4}$  oz.; potassium bromide, 15 gr.; water to 10 oz. No. 2: Potassium carbonate, 1 oz.; water to 10 oz. Use equal parts of each. The above developers—glycin and hydroquinone, singly and combined, gave what may be termed normal results on halves of stale plates, the companion halves being badly fogged with pyro and other developers in common use. The hardness or contrast was in no case objectionable, and the only real drawback to the methods of development was the very long time of development—mainly because of the retarding action of the bromide—and the difficulty of judging density, the appearance (quality) of the unfixed plate being a little deceiving. Efforts to shorten the time of development by exposing more fully, lessening the amount of bromide and increasing the temperature, met with no success, fog appearing in each case.

There now remain the methods of development calling for the addition of "foreign" salts to what one may term normal developers—pyro, metol-hydroquinone, etc.—or the use of supplementary baths. All stale plates—"surplus" and home-staled—withstood the tests remarkably well, though the results obtained were much too hard for everyday use; the methods, however, may be safely employed for copying too soft originals and for line subjects.

The best of the "supplementary systems" is that calling for a bromide-bichromate restrainer made by dissolving 2 gr. of potassium bromide and 2 gr. of potassium bichromate in 1 oz. of water. This is used as follows: Take enough water to cover the plate to be developed and add about 20 drops of the special restrainer. Flow the mixture over the plate and rock for about two minutes. In a measure have ready any normal developer and pour the preliminary bath therein, return to the plate and develop as usual. If the plates are exceptionally bad one single drop of sulphuric acid may be added with advantage, but if the acid can be avoided so much the better. Plates to be developed by the supplementary bath system call for a very full exposure, and development is very slow indeed, so slow that a dish cover is advisable. This plan is perhaps the most economical one, and it may be recommended to those who do not consider the making up of a special developer worth while.

A quarter of a century ago, when I was employed in a Parisian photographic studio of world-wide fame, there was published a book entitled, "*Ce qu'on peut faire avec les plaques violées*" ("What to do with Fogged Plates"),

and as the firm I was associated with had a large supply of them, I was given the task of making some experiments. The best method we could discover, and by far the most troublesome one, was to treat the plates before exposure with a bichromate solution (potassium bichromate, 50 gr.; hydrochloric acid, 5 drops; water 5 oz.) afterward washing well and drying in the dark. The plate were as sensitive as they were originally when all the bichromate was washed out, but when any was left in the plate was slowed down. The plates were used successfully for copying in the studio and in the Louvre. Any normal developer with bromide will serve for plates bichromated as above, but we secured the best and brightest results by soaking the treated and exposed plate for ten minutes in a very weak tartaric acid solution (5 gr. of acid in 10 oz. of water), and developing, after a rinse in water, in a normal hydroquinone developer, but with double the amount of potassium bromide. The process is one that can be recommended, but it is a very troublesome one if the worker has no proper conveniences for drying the treated unexposed plates.

Many other methods of treating stale and badly-kept plates have been tried during the past few weeks, but a recital of them would be of no real service, because of their utter uselessness or difficulties in carrying out. Only those methods have been given that are of service. The one for a photographer to employ will depend very largely upon the number of plates he has to treat, what the plates are to be used for, and his facilities for carrying out the necessary operations. The worker who has but a few stale plates—either those home from service abroad or those that have suffered at home—will try the bromide-bichromate restrainer named above, while he who has a large stock will look around for some Kachin or pyrocatechin, and, failing to secure any, will fall back upon the easily-obtained, and very nearly as good, hydroquinone and glycin, singly or combined, not forgetting potassium bromide, which has saved so many old and fogged plates from the dust-bin in the past.

The plates experimented with, it may be stated, were of the ordinary type and not color-sensitive. I have a fairly large stock of old panchromatics with which experiments may be made at a future date. A few I have exposed and developed in the usual way appear to be quite good, and to have lost none of their color-sensitiveness.—L. TENNANT WOODS, in *B. J.*

### Enlarging Methods

To most people the mention of enlarging apparatus only suggests the magnified magic lantern which is so generally used, and for small negatives, say, up to half-plate or even to whole-plate size, this type is convenient and leaves little to be desired. When the diameter of the condenser exceeds ten inches practical difficulties have to be encountered, and these are not so much inherent in the design as in the optical imperfections which cannot be eliminated without an outlay which would be prohibitive to any but the most wealthy purchasers. In order to obtain a sufficiently good light with a large

apparatus, the electric arc is usually employed and this, although theoretically perfect, has a way of finding out imperfections in the grinding of the condenser as well as in the annealing and uniformity of density in the glass itself. Hence dark patches with color fringes, which alter in position upon the screen when the light is moved, but which cannot be got rid of altogether. With a large illuminant, such as an incandescent mantle, these defects are less evident, because the source of light is larger, and rays from more widely separated points falling upon the condenser simultaneously tend to equalize the illumination over the whole field of the lens. In a similar way the introduction of one or more pieces of ground glass tends to the same end, but at the expense of illuminating power—a serious matter if a dense negative has to be dealt with, unless the size of the arc which is being used is out of all proportion to the work which is usually required of it. From some recent experiments we are led to believe that a solution of the difficulty will be found in the use of one of the smaller nitrogen-filled lamps of the type generally known as "half-watt." In the pattern which is most suitable for our purpose the filament is made in the form of a fine spiral, like a bell spring, which is bent into a circular form so that it gives an apparently solid ring of light, which is horizontal when the lamp is in a pendent position. In order to make the best use of these lamps, this ring of light must be parallel with the surface of the condenser. There is thus a temptation to fix it "end on," but this does not conduce to the longevity of the lamp, for not only is the filament more likely to fracture, but the blackening of the bulb, which should be confined to the specially designed neck, is spread over the whole surface. It is, therefore, a better plan to have the lamp in its normal position, and to transmit the rays to the condenser by means of an ordinary mirror, silvered on the back, the direct light from the side of the spiral being cut off by a metal or asbestos shield. Those familiar with the Howellite gas lamp for projection will readily see the necessity for this.

So far we have assumed that expense is no objection and that shortness of exposure is of great consequence, in order that slow papers of the Kodura or Cyko types can be used for enlarging as well as the more rapid bromide papers. If this be not the case, excellent results may be obtained without the use of a condenser at all, a powerful light being placed behind the negative and diffused by means of two or even more thicknesses of ground glass. In this connection it may be noted that most of those who have used this method have failed to avail themselves of the great aid of an efficient reflector. If an ordinary silvered concave glass reflector, such as is commonly used behind gas lights in passages and corridors, be properly adjusted, a brightly illuminated disk will be projected upon the ground glass diffuser. The illumination will be more even and the exposures reduced by at least one-half. Even four pieces of silvered glass fixed in the form of a hollow pyramid, with the light in the center, will give greatly increased evenness and strength of lighting.

Of direct lighting systems of this class the



specially designed "gridiron" pattern of mercury vapor lamp is probably the nearest to perfection we are likely to obtain. Here we have a set of short parallel tubes emitting an intensely actinic light, which are placed comparatively near the negative with a ground glass diffuser between. This arrangement is extensively used in America, but does not seem to be so widely known in this country as its merits warrant. Enlarging by daylight is little practised in this country, possibly because the work can only be proceeded with at certain times, and these times are usually otherwise occupied. If there is a possibility of putting a small skylight in the dark-room roof and fixing a nearly vertical enlarger beneath it, there can be nothing simpler or cheaper. In former years a great firm made thousands—perhaps millions—of collodion transfer enlargements in this way with perfect success and ease of working; but in these days it would not do to have to wait for good daylight to make an enlargement for Press purposes. Nevertheless such an apparatus forms a very useful addendum to the ordinary enlarging lantern, when an order comes in for a large print from a 12 by 10 negative.

Illumination of the negative by reflected light has been recommended by some, and various lighting attachments have been devised for the purpose. They are all very similar in design. A white screen is fixed behind the negative, and two or more powerful lights are placed so that it is as evenly illuminated as possible. The results obtained are excellent, but, except for small sizes, the exposures are unduly prolonged, even the rapid papers requiring exposures of three to thirty minutes with two small arc lamps and a lens working at a normal  $f/8$ . With very thin negatives results can be obtained which cannot be equalled by any other method, but with dense ones it is impossible to get detail in the high-lights with any exposure in reason. A point which must not be overlooked is the distance between light, reflecting screen, and negative; this should be adjustable, so that for small negatives the illumination may be made stronger, while for larger ones, in which more surface has to be used, the light can be equally distributed over it.

#### Toning Gaslight Prints with Uranium and Sulphur

THERE appears to be a great deal of misconception about the use of the salts of uranium as a toning agent. The question has often been asked, what is uranium, because the name has so often occurred in the line of photography. Uranium is a metal; it was discovered by Klaproth, a Swedish chemist, in 1789. It is obtained from pitchblend or uranite, these substances being the natural oxides of uranium. The name uranium was given this metal after the planet Uranus, which had then been discovered by Dr. Herschel, the astronomer. Today it is well known that uranium and its salts possess the properties of radium, only in a lower degree; in fact, radium is regarded as an offspring of uranium, this latter metal being often spoken of as the parent element.

There are three salts and two oxides of uranium: the sulphate, chloride, and the nitrate. It is this last salt that is used mainly in the art of photography. It can be used either as a sensitizing agent or a developing agent. With these subjects the present article is not intended to deal. The use of the nitrate of uranium as a toning agent for the changing of the color of a weak black platinum print into a beautiful Bartolozzi red is very well known. When these prints are properly treated to secure the right color, their permanency appears to be as good and in many cases better than thousands of the prints made today by some of the silver printing-out processes.

The writer possesses many of these uranium-toned prints that were made eleven years ago, and not a single print has faded during this time. The whites are perfect, and the color remains the same. In the case of uranium toning the color obtained is due to a deposit of the ferrocyanides of uranium, and it will be invariably found that where failure occurs to secure the right color it is due to the ferricyanide of potassium (red prussiate of potash) having been exposed for some time to the action of daylight, which affects the salt and makes it useless for toning purposes in combination with the salts of uranium.

Some very charming colors can be obtained upon prints made with the gaslight or artificial light developing papers. The solutions need not be made as strong as those that are used for the toning of platinum prints.

Solutions made up as follows will prove satisfactory, always bearing in mind that the more acid the bath is made the more intensely red will be the resultant print. Several prints can be toned in the bath at the same time, although it is advisable not to attempt to tone too many at a time.

For the toning of the ordinary developed print, make up the following mixtures, and label the bottles No. 1 and No. 2. The uranium salt may be made up in a white glass bottle if no other kind is at hand, but the ferricyanide of potash solution must be made up in an amber-colored bottle owing to its sensitiveness to light.

#### No. 1 Solution

Nitrate of uranium . . . .	60 gr.
Distilled water . . . .	30 oz.

#### No. 2 Solution

Ferricyanide of potassium (red prussiate of potash) . . . .	60 gr.
Water . . . .	30 oz.

For making up the correct toning solution, take equal parts of No. 1 and No. 2. Be sure and mix them under a weak artificial light (make under ordinary gas jet) and carry out the toning by this light. Add to the mixture (if dry four ounces of each are used) one ounce of acetic acid No. 8; rock the tray so that the solutions are well mixed, then place into it a dried print that has been thoroughly well washed prior to drying; now rock the tray so that the solution flows well over the print, and continue the rocking, when it will be seen that the print changes



color rapidly. As soon as the print has reached the desired color, remove it and wash well in running water; in fact until the yellowness has disappeared from the drapery and the whites of the print. It may then be blotted off in clean blotters and hung up to dry by means of a clean wood clip, and when dry trimmed and mounted like any other print.

Where a gaslight print is to be sulphur-toned the procedure is entirely different. The two following formulæ will give excellent results, the brown color and sepia being perfect in every way. Make up the following solutions:

A	
Water . . . . .	24 oz.
Ferricyanide of potash . . . . .	1 oz.

B	
Water . . . . .	24 oz.
Potassium bromide . . . . .	1 oz.

C	
Water . . . . .	60 oz.
Monosulphide of sodium . . . . .	$\frac{1}{2}$ oz.

The bleaching bath is made as follows: Mix in a tray five ounces of A and five ounces of B, add a few drops of strong water ammonia, place the print into this mixture, rock the tray, stop as soon as the print has become well bleached, remove it and wash well in running water for five minutes or more. Then place the print into a separate tray containing about ten ounces of the sodium sulphide solution, and it will change in color to a beautiful rich brown. Now wash the print well for one-half hour in running water, after which it may be dried and mounted.

The following formula will give a very beautiful sepia when used as a bleaching agent:

#### *Bleaching Solution*

Chloride of lime . . . . .	2 oz.
Common alum . . . . .	$\frac{1}{2}$ oz.
Water . . . . .	30 oz.

Warm this mixture slightly, then immerse the print, and keep the tray in motion until the print is completely bleached. Then wash the print well in running water for fifteen minutes and place the bleached print into the following mixture:

Sulphite of soda . . . . .	$\frac{1}{2}$ oz.
Water . . . . .	20 oz.
Sulphuric acid . . . . .	2 drams

The above mixture must be stirred well before immersing the print. By this means a color is obtained quite different to the previous formula; the tone is very agreeable, and all that will be required after this sulphurizing will be to give the prints a thorough washing in running water for one-half hour before drying or mounting.

If a darker color is required the process must be repeated, but in 99 cases out of a hundred the single operation is all that will be required.

#### **Telephoto Lenses for Professional Work**

As a body professional photographers do not seem to have taken very kindly to telephoto

lenses, evidently considering them only fit for amateur "stunts," such as making large pictures of clock dials and weathercocks at a distance of half a mile or so. This feeling has, I believe, been created to a great extent by the specimen pictures published by the lens makers, who are naturally anxious to demonstrate to the utmost the capabilities of their instruments. It will perhaps help the professional to a better understanding of the telephoto lens if we consider it as an ordinary lens of greater focal length than usual, but needing only ordinary camera extensions—a lens, too, of which the focal length is adjustable, so that images on different scales may be obtained from the same standpoint. It will then be recognized that such a lens is a valuable tool in the hands of a practical man.

As many photographers have never troubled their heads about this kind of lens, it may be necessary to explain that in its simplest form it closely resembles one tube of an ordinary opera-glass—that is to say, it has a positive lens in front and a negative lens behind, with some arrangement for varying the distance between them. As a matter of fact, although not properly corrected for photography, it is possible to make very passable telephotographs with an opera-glass fixed on an ordinary camera. There is rather a large variety of sizes and models issued by different optical firms, but they may roughly be divided into three classes: (1) non-adjustable—*i. e.*, fixed focal length telephoto lenses, such as the Telecentric and Bistelar; (2) telephoto lenses with an adjustment for varying the focal length, such as the Zeiss Magnar, Dallmeyer Adon, and others; and, (3) portrait, rapid rectilinear, and anastigmat lenses, fitted with a telephoto attachment, which can be screwed on in a moment, when needed, without at other times interfering with the usual work of the lens.

The first class is usually of low magnifying power, and differs little from an ordinary lens in its manipulation. It is extensively used on reflex and other cameras for rapid exposures, and in some cases the large aperture ( $f/5.6$ ) permits of portraiture in the studio. It should be noted that, in common with all telephoto lenses, the plate covered is small in relation to the focal length used.

The second class is useful for a wider range of subjects when rapidity of action is not essential. The little Adon is a well-known example of this type, and although simple in construction, is capable of much useful work. I therefore take it as a type to illustrate the working of telephoto lenses in general. The front or positive lens has a focal length of  $4\frac{1}{2}$  inches, and the back lens a negative or minus focus of  $2\frac{1}{4}$  inches. By varying the distance between these by means of the rack adjustment we have a wide range of focal lengths. Thus with a camera extension of 5 inches we have an equivalent focal length of  $14\frac{1}{2}$  inches and a maximum aperture of  $f/13$ , the plate covered being  $4\frac{1}{4} \times 3\frac{1}{4}$ . At 11 inches camera extension the focal length is  $26\frac{1}{2}$  inches, the aperture  $f/26$ , and the plate covered about  $8 \times 6$ . At 20 inches extension the focal length is  $44\frac{1}{2}$  inches, the aperture  $f/44$ , and the plate covered  $15 \times 12$ . These figures give a general idea of what a moderate-power telephoto lens will do.

The third class is usually of somewhat similar power to the Adon, as it commonly consists of a combination of a positive lens of any convenient focal length, with a negative lens of half its focal length, although for special work negative lenses having a focal length one-fourth that of the positive may be used. Such a combination is termed a high-power lens, as it gives a proportionately larger image with the same camera extension. I am purposely avoiding the term "magnifications," as this I consider has led to misunderstanding in the past. The equivalent focal length at the time of exposure is the point of interest to the photographer who does not care whether it results from three magnifications as compared with one lens or six with another.

The manipulation of a telephoto lens is quite simple, and the only difference from the ordinary procedure is that focussing is best effected by using the rack and pinion of the lens attachment instead of that of the camera. With a moderate-power attachment—that is to say, one-half the focal length of the positive—the equivalent focal length is twice the camera extension (measured from the back surface of the negative lens), plus the focal length of the positive lens. Thus, when using an 8-inch rectilinear fitted with a 4-inch negative lens, we have at an extension of 16 inches an equivalent focal length of 40 inches, and so on for all other sizes. The focal length in this case being increased five-fold, the  $f/\text{No.}$  on the iris must be multiplied five times, so that  $f/8$  temporarily becomes  $f/40$ . Having decided upon the camera extension, all that is needed is to rack the sliding tube of the attachment in or out until a sharp image is obtained. This must be done very slowly, much in the same way as when using the coarse adjustment of a microscope, or there is danger of passing and repassing the point of sharp definition without knowing it. It might be imagined that with apertures of  $f/40$  or less long exposures would be required, but these are greatly reduced by another factor, the distance between lens and subject so that in many cases half or even a quarter the exposure indicated by a meter for an object, say, at 36 feet, would be sufficient.

A color-screen usually adds considerably to the brilliancy of the result when distant views have to be dealt with, but it is not necessary for near subjects in which there is no perceptible haze over the deepest shadows.

Plates which give density readily are the best for this class of work, and I have found the "ordinary" and slow ortho rapidities preferable to extra rapid brands. The Imperial Special Rapid is about the fastest plate I should recommend.

Development usually takes longer than for close-up views. A full-strength developer should be used and development carried on until all action ceases. I have turned a plate face down supported by four bits of glass in the corners in a normal pyro-soda solution, containing a little bromide solution to prevent chemical fog, and left it for forty-five minutes, the resulting negative being an excellent one.

The applications of the telephoto lens are many and varied, and cover a much wider field than is generally imagined. In ordinary view work its

value is obvious, as its elasticity of focal length enables a subject to be taken from the most advantageous standpoint upon any desired scale, so that the proper amount can be included upon any size of plate. For architectural details it is unrivalled, whether the result is a fine piece of carving for study or illustration, or a piece of faulty work, cracked or subsided for use in a legal action. When the London tubes were projected the houses under which the tunnels would pass were carefully surveyed and telephotographs taken of all existing cracks or distortions before commencing work. In quite another field of study photographs of statues scores of feet above the ground were taken for the purpose of identifying them as the work of the same artist, little mannerisms being clearly shown in the prints.

For catalogue work, especially of small articles which have to be depicted in their full size, or nearly so, the telephoto lens is again a winner. Let anyone compare a print of a snuffbox taken full size with, say, a 12-inch lens and a telephoto at 20 inches camera extension. For flower photography the telephoto is excellent, much greater depth of definition being obtainable, while some lenses add a slight softness to the outlines which gives a better idea of the texture than the dead sharp images usually obtained.

For portraiture its use is somewhat limited on account of the small working aperture of most models, but the Telecentric makes an excellent portrait lens. Lenses upon the same principle are, I believe, to be placed upon the market by two other firms.

The foregoing is not in any way intended to give full working instructions, but rather to outline the properties and uses of the telephoto lens to those who have hitherto neglected it. Several excellent books have been issued on the subject, and these can be referred to for fuller information.—B. J.

### The Hand-Camera in Professional Photography

THE hand-camera is, of course, the principal tool of the Press photographer, who has made a fine art of its manipulation, often obtaining results which appear even more wonderful to his brother of the studio than they do to the layman. We do not, however, purpose to discourse on the achievements of the Pressman, but rather to deal with the possibilities of the hand-camera in general photographic practice. There are many photographers of great practical experience and undoubted skill who still regard all hand-cameras as toys, and characterize all successful results as flukes, believing that the percentage of satisfactory exposures to be capable of expression only by a fraction—not even 1 per cent. But the skilled hand-camera worker knows better than this. His actual proportion of failures may be greater than that of the stand-worker, but the actual number of printable negatives is much greater, for he can make exposures in circumstances impossible to the tripod user, and often the plate which has only had a sporting chance turns out to be a winner. The professional photographer who is taking up hand-camera work



will do well to become an amateur for the nonce, and to "get his hand in" on subjects which will not involve any risk of loss of money, or, what is worse, loss of reputation, in case of failure. That such practice is necessary we can assert from the experience of more than one worker who has acquired an expensive instrument, rushed out with it at once on an important job and failed to obtain anything worth looking at. Of course, the camera was blamed and laid aside as too faddy and only fit for an amateur. What a different story might have been told if a couple of dozen plates had been "wasted" in thoroughly mastering the mechanism and gauging the capabilities of the lens and shutter.

Very careful attention must be given to the selection of the type of camera, and the nature of the model must largely depend upon the work which is most likely to be undertaken. We are inclined to recommend the reflex as being best suited to the photographer, who has always had the help of the focussing screen, although its weight and bulk detract slightly from its usefulness. Still, for child portraiture out of doors, animals, "at home" work, and the like, the reflex has many advantages. As in any case the negatives will have to be enlarged, we do not recommend using larger than post-card size, and in the majority of cases quarter-plate will be preferable. It is desirable that in addition to the short focus lens, usually fitted, one of greater focal length should be carried, eight inches not being too long for a quarter plate. This lens should have as large an aperture as possible, as it will be mainly used for portraits and animals, allowing a fair-sized image to be made at a distance which will ensure pleasing perspective. Most of the  $f/4.5$  anastigmats are well adapted for the purpose, or if the photographer happens to possess a suitable portrait lens, such as Ross C. D. V., or Dallmeyer's 2.B, he will find it an excellent substitute. Folding cameras of the Goerz-Anschütz type have their good points, but require a longer apprenticeship before they can be used to the best effect, the judging of distance being the greatest pitfall for the inexperienced. Moreover, they are not so well adapted for fitting larger lenses as is the reflex. Twin lens cameras have many of the advantages of the reflex, but as a rule are minus a reversing back; and upon near subjects an allowance has to be made when placing the image upon the focussing screen on account of the difference in the viewpoints of the new lens. Such cameras may, however, often be purchased quite cheaply at second-hand, and are well worthy of the attention of the frugal photographer. The question of plates *vs.* films is one that most photographers will decide in favor of the former, but it is a wise precaution to have a film-pack adapter fitted, so that an ample reserve of exposures is to hand. In the smaller sizes the pack films are flat enough not to cause any trouble even with such apertures as  $f/4$  or  $f/5.6$ .

As to the uses to which the hand-camera can be put, we need say but little, as every worker has his own requirements, but a few suggestions are offered. First and foremost comes the portraiture of children and animals. In the case of the former often the only way to secure a

pleasing result is to "stalk" the juvenile with a reflex, snatching any happy pose which may present itself, while in the latter, although more deliberate working is possible, a change of position does not create the difficulties which it does when using the tripod. In home portraiture the small size of the camera and the absence of a focussing cloth make the work easier in a confined position and less trying to invalids and the aged. A hand-camera also affords a ready means of securing a series of post-card views, even when visiting a district for other purposes, while an occasional "snap," available for the Press, will soon repay the cost of the outfit. As we have already hinted, the enlarger is the necessary complement of the hand-camera, and in order to save time and trouble the focussing should be done by scale, or a fixed focus enlarger should be used. There is really no reason why the strip system should not be adapted to enlarging, so that even quite cheap work could be turned out at remunerative prices.—*British Journal of Photography*.

### Dry Collodion Emulsion

[For many special branches of photography, ferrotyping, photographing on wood, watch dials, opal plates, etc., dry collodion emulsion plates by their fineness of grain and thin films possess special advantages. We extract from the authoritative text on the subject—"Collodion Emulsion," by H. O. Klein.—Ed. P. J. or A.]

Generally speaking, collodion emulsion may be used for every kind of photographic work for which wet collodion or gelatin dry plates have hitherto been used. The treatment and method of handling will differ according to the purpose to which it is applied. We accordingly set forth the different processes, commencing with the oldest and simplest applications, such as to ferrotype plates, wood blocks, leading up to the more complex negative making processes in which color sensitizers are introduced into the emulsion. First, however, we deal with the preparation of the glass plates.

Only new glass should be used, as scratches show in the negative.

The plates should be immersed in a strong caustic potash solution, if they are old negatives, so as to free the glass of the film. If they are new glass plates immerse them for a few hours in

Bichromate of potassium . . . . .	2 oz.
Sulphuric acid . . . . .	3 oz.
Water . . . . .	25 oz.

Rinse under the faucet and polish with an alcoholic solution of caustic potash or iodine and finally polish with a clean pad of linen charged with a few drops of ammonia and alcohol. The plates cannot be kept clean for a long period as the action of the atmosphere very soon forms a deposit on the polished surface.

The effect of unclean glass on collodion emulsion is much more marked than in the case of a wet collodion plate; the plates are to be coated with great care as streaks and other imperfections on the surface will show when the plate is developed.



It must be borne in mind that the surface of plate glass is considerably softer than that of ordinary sheet glass, due to the removal of the hard surface in the process of polishing.

The ordinary sheet glass is therefore less liable to be injured by an excessive immersion in strong acid baths than is plate glass.

#### *Substrata*

In most cases the writer prefers polished plates without a substratum, applying only a rubber solution to the margins to make the film hold to the glass. If for any reason, however, a substratum is desired, the following can be recommended:

India rubber (best Para)	1 part
Anhydrous benzole (or chloroform)	500 parts

This is flowed all over the glass, and may in more concentrated form be used for edging. Albumen is a useful substratum, and the following is a good formula:

Water	80 oz.
Albumen	1 oz.
Ammonia	1 min.

The substratum which we have found most reliable is given in the following formula:

No. 1	
Gelatin	50 gr.
Acetic acid	3 oz.

The gelatin is warmed until dissolved.

No. 2	
Water	3 oz.
Chrome alum	10 gr.

Take 10 parts of No. 1, 1 part of No. 2; Columbian spirits, 70 parts, and filter.

The plates must be dried in a room free from dust or in a drying cupboard. Heat can be applied and the plates will be ready for use within a minute. It is, however, advisable to coat several plates, before wanted, so as to allow the acetic acid to evaporate and to cool the plate.

If the plate is not perfectly cold the ether in the collodion emulsion will evaporate during the process of coating and an uneven film will be the result.

The presence of acetic acid also causes considerable decrease in sensitiveness, and is very marked in emulsions which are sensitized with ethyl violet.

A substratum is especially useful with emulsions which are not sensitized with the Dr. Albert's sensitizers, as several aniline dyes have a tendency to make the film float off the glass. This is prevented by the action of the picric acid which is present in Dr. Albert's sensitizers.

A substratum will also be needed if the plates are to be developed with the hydroquinone developer, which makes imperfections in the glass and polishing marks visible. If glycin is used this precaution need not be taken. A

mixture of hydroquinone and glycin has been found to answer even with ordinary polished glass, but for half-tone work hydroquinone alone will give the best results, and a substratum, preferably the last quoted one, will have to be used.

#### *Coating the Plates*

The emulsion is well shaken in the dark room for at least ten minutes, to get the bromide of silver particles, which settle at the bottom of the bottle after standing, uniformly and thoroughly dispersed in the emulsion. The operator should let the bottle stand for another two minutes and then coat the plate after dusting it well.

Most operators are well acquainted with the coating of the plate with collodion, but for the benefit of those who never worked collodion plates I will describe the right procedure.

Hold the plate in a horizontal position by means of a pneumatic plate holder, dust with a soft camel's hair brush, pour a small quantity of the emulsion into the center of the plate so as to form a circular pool, and gently tilt the plate first to the right hand and then to the left hand top corner, finally toward you to the left bottom corner and slowly drain back into another bottle from the remaining corner.

Do not tilt the plate too quickly and drain slowly, rocking the plate from right to left, so as to avoid thin films and streaks.

As soon as the emulsion has set (which can be determined when the finger makes an impression on the surface) the plate can be color-sensitized, or, if the sensitizer has been incorporated with the emulsion, it can be placed in the dark slide for exposure.

The dark slide should be carefully dusted before commencing the day's work, and wiped out clean at the end of the day to free it from drainings of emulsion. Dark slides which have been used for wet collodion work should never be used for emulsion, as the dry silver nitrate forms chemical dust which causes black spots if it settles on the plate.

The emulsion must not be poured back into the same bottle, but filtered into a separate bottle. Collodion pourers have often been suggested, but I believe have not proved a success. The pouring-on bottle should not be allowed to become covered by spilt emulsion, because the latter will dry and, peeling off, probably fall onto the plate during coating. This bottle and the tin in which it is stored should be kept spotlessly clean, the mouth of the bottle to be wiped after coating. Cork or rubber stoppers should not be used, as the former cause dust spots, and the latter possibly destroy the emulsion, if not made of pure rubber. von Hubl suggested the following arrangement: Take a piece of wood about four inches square, and cut into this a circular groove into which mercury is poured. Into this groove place a light-tight circular card-board box open on one end. Under this box the collodion emulsion pouring bottle is placed. The bottle will now be protected from actinic light, and as the mercury forms a fairly air-tight compartment, evaporation of the solvents will be avoided. The top of the box

will have to be made of (or covered with) lead, so as to make the box sink well into the mercury.

### *Keeping Qualities of Emulsion*

The collodion emulsion of commerce in its plain state before the addition of certain color-sensitizers, especially those which are silver compounds, will keep for several years. The addition of most sensitizing dyes does not impair its keeping qualities. If, however, silver eosine or other compounds of dyestuffs with silver are added, as, for instance, the sensitizers "A," "RP," "R," "P," of Dr. Albert, the emulsion will only keep a few days, and in hot weather probably only a few hours.

The life of collodion emulsion thus sensitized can be greatly prolonged by keeping at a very low temperature, and if such sensitizers are to be mixed with the emulsion, it is advisable to prepare small quantities, such as can be used up during the day's work. The newer sensitizers, as, for instance, pinaverdol, ethyl-violet, and homocol, can be mixed with the emulsion and it will still keep for a very long time, showing extremely clear working qualities.

### *Developers for Collodion Emulsion*

Dissolve:

Sodium sulphite . . . .	2½ oz.
Distilled water (hot) . . . .	4 oz.

and add

Glycin . . . . .	1 oz.
------------------	-------

and

Carbonate of potassium . . . .	5 oz.
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The order of mixing as stated above should be carefully followed.

The solution forms a thick paste, and will keep for years if well stoppered. For use dilute:

Glycin paste . . . . .	1 part
Water . . . . .	12 parts

This forms the usual developer. If greater density is required, the following developer is recommended.

A	
Distilled water . . . . .	20 oz.
Sulphite of sodium . . . . .	10 oz.
Carbonate of potash . . . . .	8 oz.

B	
Hydroquinone . . . . .	1 oz.
Water, distilled . . . . .	4 oz.

C	
Ammonium bromide . . . . .	1 oz.
Water, distilled . . . . .	4 oz.

Mix the three solutions and keep as stock. For use dilute 1 in 10.

This developer, introduced by Dr. Albert, does not keep so well, but gives extremely brilliant negatives of good density.

The density of the negatives can also be varied by increasing or decreasing the amount of hydroquinone in the developer.

Collodion emulsion plates can be fixed with hyposulphite of sodium or cyanide of potassium. The strength of the hypo solution should be about 1 in 4.

Collodion emulsion plates must always be washed *before* development, because the alcoholic surface would repel the aqueous solution of the developer, and so cause streaks and markings.

The time of development should not exceed one and a half to two minutes. Development can be performed while the plate is held in the hand or in the dish. For uniform development the dish development is preferable, especially in color work. Accelerators or restrainers are of little use in emulsion work, where correct exposure is a desideratum. It will generally be found that the image on an accurately exposed plate appears in about thirty seconds in the hydroquinone developer, and in about fifteen seconds in the glycin developer.

The above formulæ represent the developers generally in use, and in the case of half-tone work are the only developers which will give good results. For ordinary continuous tone work almost any developer may be employed—adurol, metol, rodinal, all of which give negatives only differing in color and brilliancy, but equally good. A higher percentage of bromide in these developers will probably be needed.

The usual hydroquinone developer furnishes exceedingly clear but hard negatives, a quality most desirable in process work, but very objectionable in the continuous tone reproduction of an oil painting, for instance. Glycin yields considerably softer negatives, especially if used in a very diluted form, but the color of the negatives is of a yellow brown, which, however, can be changed for a more beautiful blue gray by a short application of very weak mercury intensifier and ammonia.

This will probably serve the additional purpose of increasing the density of the negative, which is generally below the average for ordinary silver printing. The complaint often made that emulsion negatives are hard and devoid of detail in the shadows is not justified, because the softest and best graduated negatives have been made with emulsion by proper choice of developer and sensitizer.

### *A. Ferrotypes*

Collodion emulsion can be used for the making of ferrotype dry plates for portraiture. The ferrotype plate is well polished with a few drops of alcoholic iodine solution, dusted and coated on a glass plate support.

To coat a ferrotype plate evenly is by no means easy. The plate should lie flat, and the surface must not show scratches or chipped off parts in the enamel. Preservatives can be used if the plates are not immediately wanted. Chemically pure tissue paper should be placed between the plates when they are dry. Drying can be accelerated by means of a drying oven, or for small work a hot-water bottle or bath. To

ascertain whether the plates are in good working order, one of them should be placed in the developer for about one minute without previous exposure, washed and fixed. The black enamel should not be dulled with the silver deposit, and the plates should look almost as if uncoated. Glycin and hydroquinone are suitable developers, the application of which should only last from fifteen to twenty seconds. The color of the silver deposit can be changed if different developers are used, but for most purposes the formulæ given will answer very well.

#### *Developer for Ferrotype Plates*

##### A. SOL. 1

Distilled water . . . . .	24 oz.
Sulphite of soda (specially pure) . . . . .	10 oz.
Carbonate of soda . . . . .	8 oz.
Ammonium bromide . . . . .	1 oz.

##### SOL. 2

Hydroquinone . . . . .	1 oz.
Distilled water . . . . .	4 oz.

Mix and label the solution A.

##### B

Carbonate of potassium . . . . .	6 oz.
Sodium sulphite . . . . .	12 oz.
Glycin . . . . .	1 oz.
Water . . . . .	10 oz.

Powder the sodium sulphite well and add the glycin after everything is dissolved. Mix and label the solution B.

##### C

Hypo . . . . .	1 oz.
Water . . . . .	10 oz.

For use take:

- A, 3 drams;
- B, 3 drams; water, 9 drams;
- C, 10 to 20 minims of water.

This developer gives a white silver deposit, clear shadows, and its action is rapid enough for very fast work.

The addition of color-sensitizers, as pinaverdol, homocol, etc., gives very pleasing results, the coldness of the white image giving way to a warm pink shade more resembling flesh tints. The plates are also speedier and work exceedingly clear from fog.

#### *B. Photographing on Wood*

Collodion emulsion has been found very useful in photographing upon wood for wood engraving purposes, giving a photographic film which is thin enough to permit subsequent tool work without chipping. The wood block is coated in the usual way with a white pigment mixed with gelatin. The edges and back of the block can be rubbed with wax to make it water-proof.

The collodion emulsion of commerce is diluted with equal parts of alcohol and ether, and the wood coated with it in the usual way. The dry-

ing can be accelerated by placing a hot glass plate half an inch over the sensitized surface and by fanning the block. If conditions of light remain the same, it will be well to definitely ascertain the required exposure from a good standard negative at a given distance from the source of light, by covering the negative partly and giving a series of different exposures on the same block. The development is done in the hand and should be finished in about two minutes.

Any alkaline developer can be used, but we strongly recommend the following:

Water . . . . .	10 oz.
Metol . . . . .	75 gr.
Sulphite of soda . . . . .	1½ oz.
Carbonate of soda . . . . .	1¾ oz.
Bromide of potassium . . . . .	10 gr.

Dissolve the metol in water before adding the sulphite. For use dilute with equal parts of water.

Glycin is not suitable, because the silver deposit is of a yellowish-gray color and does not show the fine details in reflected light. Fix in hypo solution 1 to 4.

A very weak solution of bichloride of mercury, and subsequent ammonia, will change the brown image into a bluish-gray one and make it more visible.

It may be advisable to mix a small quantity of chemically pure glycerin with the emulsion, which will act similarly to a preservative and so ensure quicker development and more brilliant prints.

It is of great importance to wet the block as little as possible, and to see that nothing remains on the surface to clog up the point of the engraver's tool or cause the wood to become friable, making the delicate lines crumble and break away.

#### *C. Lantern Slides, Opals and Transparencies*

Although the collodio-chloride emulsion gives a greater range of color, collodio-bromide emulsion will answer most purposes, and in the case of transparencies or lantern slides, which are to be made in the camera, will even become a necessity.

The opal or glass plate is well cleaned and polished with a solution of iodine in alcohol, edged with a rubber solution or coated with a substratum (see p. 34).

The substratum is well filtered, the coated plates dried in a place free from dust and coated with emulsion. Care must be taken to shake the emulsion well before use, because the bromide of silver settles after standing for some time and almost completely separates from the ether and alcohol when left undisturbed. The same modes of development, exposure, etc., as described for wood engraving are also to be used in this case.

If the plates are to be kept for some time before exposure the well-known beer preserver can be used.

Pyrogalllic acid . . . . .	15 gr.
Bitter ale (Bass' ale will do) . . . . .	16 oz.



The plates are immersed in this solution until all greasiness disappears, then dried spontaneously. The above formula is from Sir. W. Abney's *Photography with Emulsions*.

Another very good preservative is made by dissolving 6 grains of gallic acid in 1 ounce of alcohol.

Of this solution, 120 minims are mixed with 10 ounces of emulsion.

A good lantern plate of higher speed can be made by adding to this emulsion 5 minims of pinaverdol solution, 1 to 500 alcohol. This emulsion will keep for several months.

### Photographic Materials and Processes

*Coloring matters of flowers; Use of — in color photography.* P. R. Kögel, Phot. Korr., 57, 86—91. Chem. Zentr., 1920, 91, IV, 60.

SEVERAL of the benzopyrillium compounds occurring in flowers are shown to have a relatively high light-sensitiveness. The anthocyanins, which by themselves are light-fast, can be made very light-sensitive by the addition of sensitizers, *e. g.*, *o*-anethol to cyanidin hydrochloride. *o*-Anethol can occur as a degradation product in plants, so that it would appear that these dyestuffs can form their own sensitizers. An objection to the use of an anthocyanin in the bleach-out process is its low covering power.

*Printing-out papers; Recording the characteristic curve of —.* F. Formstecher. Phot. Korr., 1920, 57, 191—197.

A "FIRST" print on the paper to be examined is made by exposing through a paper-scale of known opacities. After rendering the base of this print transparent by soaking in paraffin oil or wax, a second print is made on any suitable paper through the first print and the exposure scale placed at right angles to one another. Lines of equal density, "Iso-opaken," on the second print represent the required characteristic curve.

*Print-out papers; Color [of the image] in — and factors affecting it.* F. Formstecher. Deuts. Opt. Wochenschr., 1920, 33—34. Chem. Zentr., 1920, 91, IV, 156.

THE color of the printing image depends on the size of the precipitated silver particles, which is affected by the initial condition of the sensitive silver salt and also by the strength of the printing light and by moisture. Emulsions with a low

proportion of citrate give blue images, the particles becoming finer grained and the color redder with increasing quantities of citrate. The redder images have also a softer gradation.

## PATENT NEWS

*Color photography. Natural Color Pictures Co., assignees of W. F. Fox.* E. P. 143,180, 14.10.19. Conv., 12.5.19.


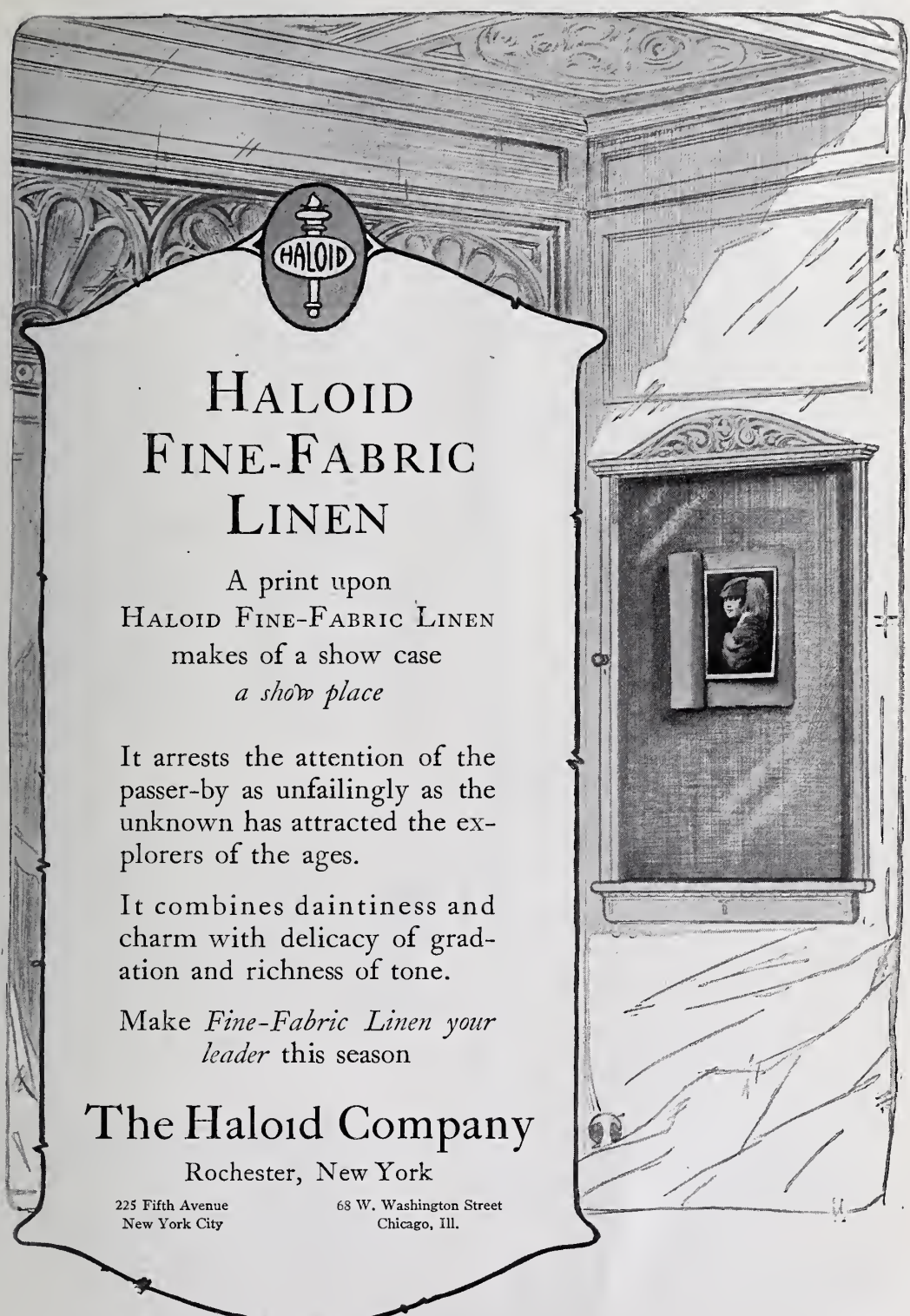
PRINTS are made in register from two complementary color-sensation negatives on opposite sides respectively of a transparent base sensitized on both sides. Both prints are toned to a color corresponding to that through which one of the negatives was taken, then the positive printed through that negative is toned in a solution which will change the tone already obtained to its complementary. For example, if a red and a green filter have been used in taking the negatives, the first toning bath may be a uranium ferricyanide solution and the second toning bath, applied to the positive from the "red" negative, may be a ferric ammonium oxalate solution. In the second toning operation, the solution may be applied to one side by a suitable rolling or brushing device, or the side not required to be toned may be protected by a waterproof coating.

*Photographic sensitizing dyes of the isocyanin type; Process of making —.* L. E. Wise and E. Q. Adams. U.S.P. 1,338,346, 27.4.20. Appl., 10.2.19.

PHOTOGRAPHIC sensitizing dyes are prepared by the interaction of sodium methoxide in absolute methyl alcoholic solution with mixtures of the quaternary halide addition products of an  $\alpha$ -methylated quinoline derivative and a  $\gamma$ -unsubstituted quinoline derivative.

*Photo-sensitizing dyes effective for infra-red radiation, Process of making —.* E. O. Adams and L. E. Wise. U.S.P. 1,338,349, 27.4.20. Appl., 4.4.19.

INFRA-RED photographic sensitizing dyes are prepared by the interaction of air and sodium methoxide in absolute methyl alcoholic solution with the quaternary halide addition products of  $\alpha\gamma$ -dimethylated quinoline derivatives.



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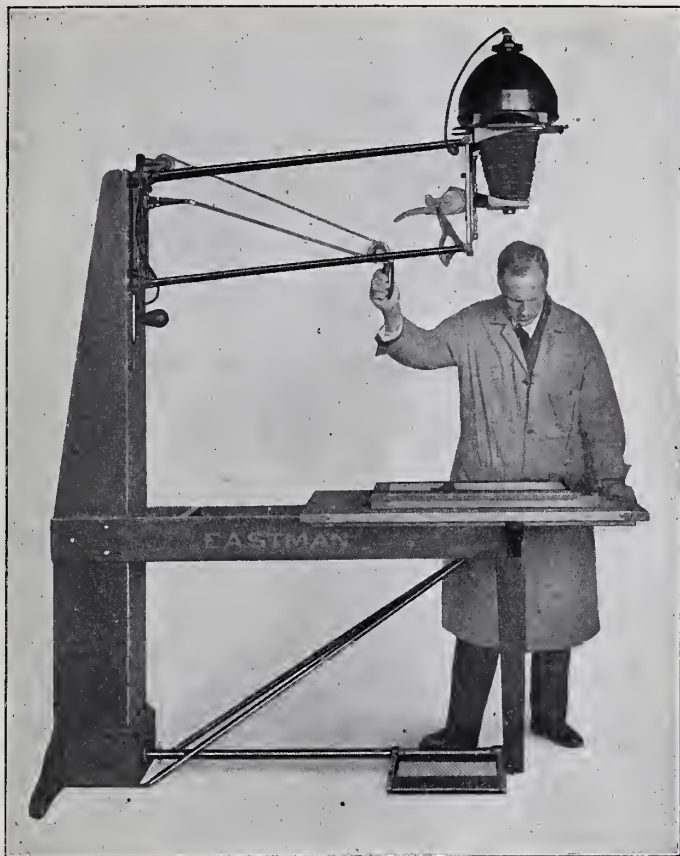
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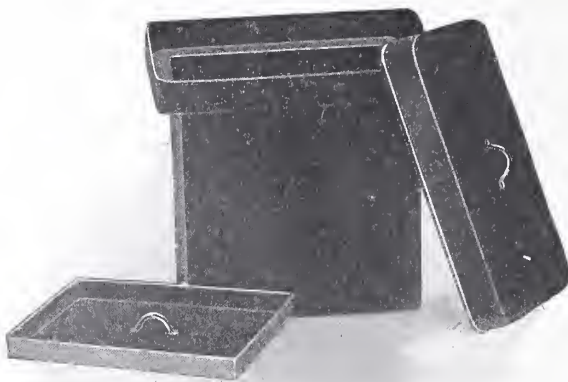
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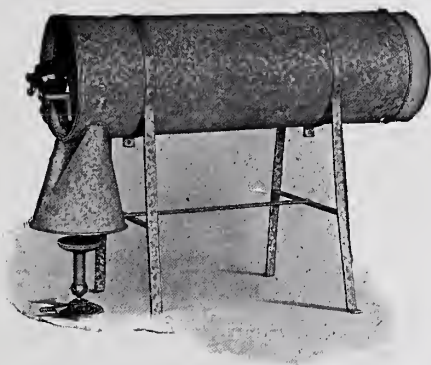
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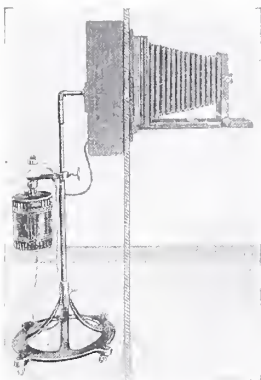
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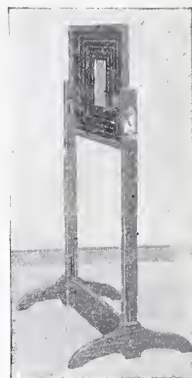
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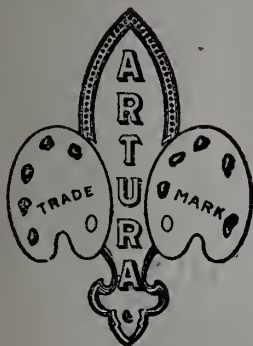
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